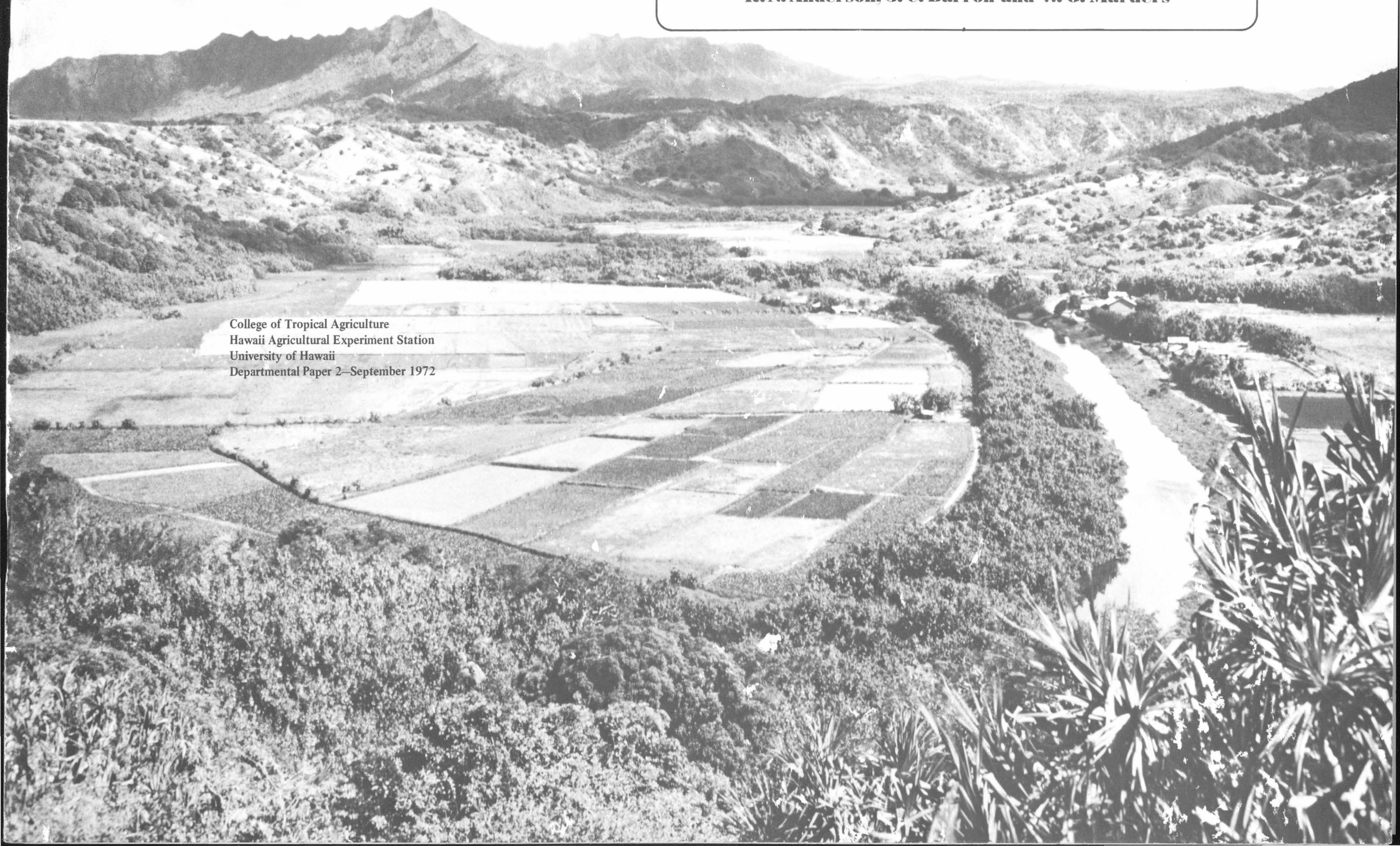
HANALEI DEVELOPMENT PLAN
A Socioeconomic Prelude

R. N. Anderson, J. C. Barron and W. G. Marders



College of Tropical Agriculture
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PREFACE

To grow or remain static or to decline is a pervasive dilemma facing rural communities throughout the United States. The forces which influence the direction and magnitude of change are often found outside the community and hence beyond the control of the people directly affected. There is often an almost mystical presumption that growth is good and should be pursued with appropriate vigor, but in recent years opposition to this view has become apparent. Some forms of economic development conflict directly with other highly valued aspects of life and are increasingly being called into question. But the alternative of attempting to maintain the status quo carries with it the risk of economic and social decline as community facilities and services deteriorate over time.

Most efforts in rural development by Federal, State, and regional agencies have been aimed at creating increases in employment and income with little attention to other social and environmental impacts. While this may be necessary in situations of dire poverty, it may not be desirable for all economically and culturally disadvantaged rural areas. The answer depends partly on the perspective from which the problem is viewed. From the Federal or even State level, the most appropriate policy may be to encourage migration out of declining rural areas rather than attempt to create an economic base where none could exist without aid. At the local level, however, such a policy is not usually acceptable.

The central premise of this study as viewed by both the consultants and the County Planning Department was that regardless of the development strategy chosen for Hanalei (or any other community), the local residents should play a major role in formulating community goals and suggesting alternative means of achieving them. This is the traditional problem of providing for processes of community planning and decision making whereby the public can become directly involved in deciding their destiny.

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BACKGROUND OF THE STUDY

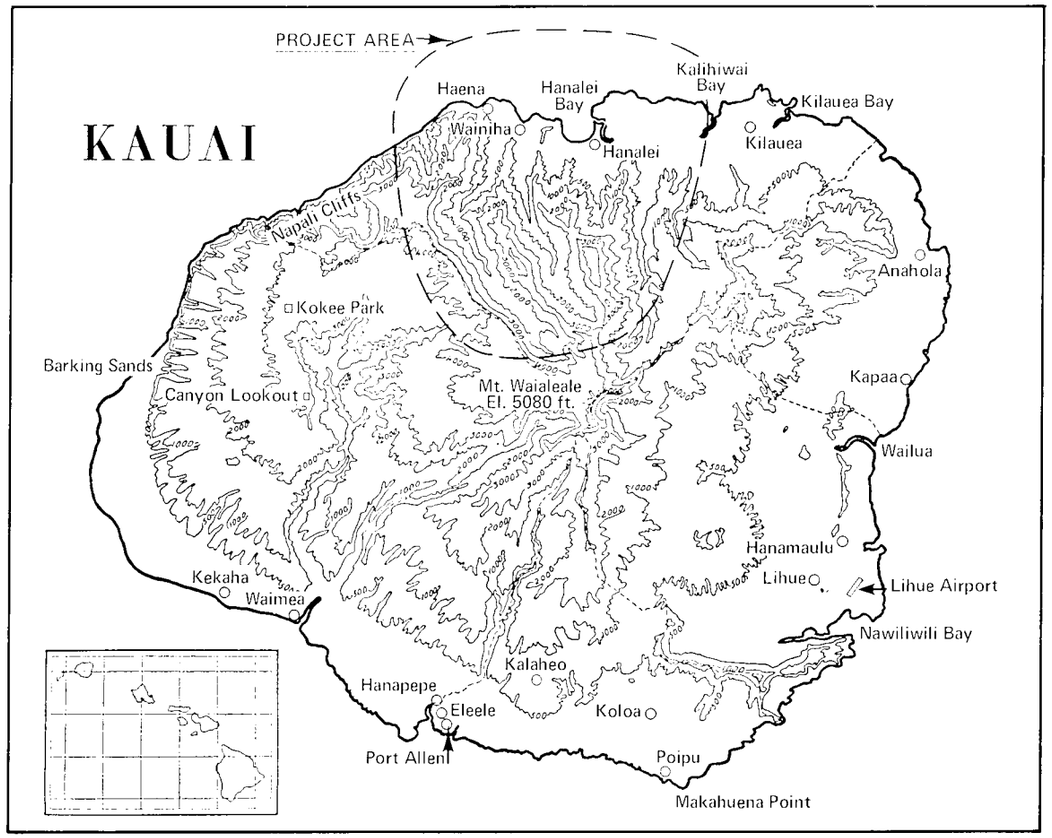

Figure 1. North Shore planning area.

The Hanalei area, on the north shore of the Island of Kauai, Hawaii, is 15 miles long and two to three miles wide (see Figure 1). Hanalei is on the threshold of transition from a small rural community with minimal outside economic pressures to a center of tourist and recreation development that will attract large numbers of new people and a variety of urban services and problems. The question of whether to step across that threshold has already been partly decided in the affirmative, but the big issues of how fast and with what consequences for community goals remain to be determined.

New demands are being placed on the resources of the area which differ from established and accepted uses and in some cases involve direct conflicts in resource use. This occurs as a result of the changing population mix and easier access to Hanalei by short term and long term visitors. A concern of the community and the County is reflected in one of the stated goals of the County General Plan

which is to "...maintain the concept of Kauai as THE GARDEN ISLE; thus insisting that any growth be in consonance with the unique landscape and environmental character of the islands."

In preparing its general plan, the County of Kauai utilized the services of a local "701 planning committee" in each planning district. In Hanalei the major issue centered on economic development and growth versus preservation of the unique scenic resources of the area. A compromise was achieved but not all segments of the community were in agreement about desirable goals and the means for achieving them. One suggestion was to create a special treatment zone in Hanalei in recognition of its special nature and natural beauty. Before such a zone could be created, additional information was required, including a more complete specification by local residents of community goals.

During the early months of 1972, work was completed preparatory to a comprehensive zoning ordinance that would provide the legal framework for such a special treatment zone. At the time the County Planning Commission authorized study of the zoning ordinance, authorization was also given for a special study of Hanalei to result in specification of a special treatment zone. Concurrent research interests and previous work plans of personnel at the University of Hawaii paralleled a portion of the proposed Hanalei study. Consequently, the Hawaii Agricultural Experiment Station at the University of Hawaii contracted with Kauai County to do a portion of the Hanalei study--the overall study being done in cooperation with two planning consulting firms, Eckbo, Dean, Austin & Williams and Muroda & Itagaki. This report is the result of the major part of the University research team's efforts.

Objectives

The basic objectives of the study conducted by the University of Hawaii were as follows:

1. To provide a basic source of information to the community and the Planning Commission as the basis of a plan for community development,
2. To fully involve local people in the planning process,
3. To improve the processes of community planning and decision making in Hanalei.

Procedure

The study was initiated in November 1971, and field work for this report was carried out during the first 3 months of 1972. A community-wide survey of 309 adults residing in permanent structures was conducted in the first 2 weeks of January. A detailed study of agriculture, its role in the community, and its future prospects was made to assess its potential in Hanalei. A study was also conducted of the tourist industry to determine the impact of recreational and tourist development in the community. To involve local people in the planning process a citizen panel was selected for more detailed discussion of community planning issues and a series of public meetings was held. Throughout the study there was

coordination and cooperation with the planning consultants involved in physical development planning.

The community survey provided the following types of information:

1. A description of the resident population,
2. An appraisal of community needs and their relative priorities,
3. A specification of factors that influence appraisals of community needs and their priority,
4. An appraisal of attitudes held toward change by people in Hanalei.

The survey was an instrument for determining broad objectives by the community and an understanding of the factors which appeared to influence attitudes. It was simultaneously a channel of communication to community residents about the study and an opportunity for each adult resident to contribute his views on community needs. Appraisals of changes in Hanalei and assessments of needs were assumed to be functions of demographic characteristics of the population. These included such factors as age, education, income, tenure of residency, and general attitudes held toward change as related to Hanalei. Further details on survey procedures are contained in Appendix A.

The agriculture and tourism studies were based on some limited information from the survey and further detailed interviews with people in the respective industries in Hanalei and elsewhere on Kauai.

A citizen panel was selected by the research team based entirely on responses to a question on the survey. Residents were asked to name people in the community who were well informed on community issues and had some good ideas about planning for the future. The panel members were those named most frequently. The Delphi method of group decision making was employed to work with the citizen panel. Initially, panel members were anonymous, even to each other, and were interviewed individually in successive rounds with controlled feedback of information. After two full rounds on each of three series of questions the panel began to meet as a group to further refine group decisions on community development planning.

THE COMMUNITY

The Hanalei community includes the extreme northern tip of the Island of Kauai, about 30 miles from Lihue, the County seat. The area as defined for this study extends from the Kalihiwai River to and including the Na Pali Coast and all the area between the mountains and the sea. The physical geography is varied, but three major areas account for the bulk of the region.

The high ground of the former Princeville Ranch extends from the Kalihiwai Valley to the Hanalei Valley and ranges from 100 to 400 feet above sea level. This area has been a cattle ranch and is now owned by Eagle County Development Corporation which is using part of the ranch to develop a large major resort area containing home sites, hotels, condominiums, a tennis ranch, golf cottages, a 27-hole golf

course, and a commercial and service center. The remainder of the ranch is still in cattle production.

A second area is the Hanalei Valley filled with taro farms, pasture, and the town of Hanalei located on Hanalei Bay. A third area is the narrow coastal strip from the town of Hanalei to the end of the road at Haena. Finally, there are several valleys and small beach areas not included above.

The population is largely concentrated in Hanalei, Haena, and Kalihiwai with scattered residences in the valleys, uplands, and beaches outside the noted major areas. The Na Pali Coast is accessible only by foot or helicopter.

Facilities and Services

Hanalei has no television reception, limited radio reception, no medical services, no theaters, no sidewalks or parking meters, and no police station. It does have an elementary school, a fire station, a courthouse, one bar, two general stores, a restaurant, a health food shop, a laundromat, a post office, and a branch bank which is open 3 hours per week. For medical services, repairs, and professional service, people must go to Kapaa or Lihue. The high school is in Kapaa, 25 miles away.

A luxury resort hotel is located adjacent to the Princeville area which attracts tourists to the community. In Haena there is a 54 unit condominium and a restaurant. The condominium also offers hotel or resort accommodations. As the Princeville project grows, it will add to the resort and recreational facilities in the area and attract many more short term visitors as well as some permanent residents.

One-lane bridges are a part of the rustic charm of the Hanalei area.

Natural Resources

Hanalei has in abundance beautiful coastline, mountains, and natural scenic beauty unexcelled anywhere in Hawaii. It has been the setting for several motion pictures and is prominently displayed in tourist propaganda. Freshwater streams are abundant, arising in the Alakai Swamp and reaching the valleys via cascading waterfalls. Hanalei Bay is widely known for its scenic beauty and the road along the coastline is dotted with attractive viewpoints. The Na Pali Coast attracts hikers and campers. The long sandy beaches with few people are another major attraction. In addition to the scenic and recreational resources, the Hanalei area produces about 40 percent of the taro grown in Hawaii. Remaining agricultural areas are largely in pasture, used for cattle.

A proposed state park at Haena would attract more people to the surrounding beaches, such as this one at the end of the road.

People

On the basis of the 309 adult respondents in the community survey, the ethnic mix in Hanalei was 22 percent Japanese, 37 percent Haole (North European ancestry), and the remaining 41 percent mostly Hawaiian and mixed Hawaiian along with a few Filipinos, Chinese, Portuguese and Puerto Ricans. As shown in Table 1, 88 percent of those of Japanese ethnicity were born in Hawaii, and 84 percent of the other non-Haoles were also born in the State. On the other hand, only 10 percent of the Haoles were born in Hawaii. As a group, the Japanese were older residents with half of them over 55 years of age; half of the Haoles were under 28, and among the remaining ethnic groups the median age was 43. For the entire community the median age of respondents was 41 years. The percentages of age groups by sex for the entire community, not just the respondents in the community survey, are shown in Figure 2.

Census figures have shown a steady decline in population for the Hanalei community. During the decade of the sixties a decrease of 20.9 percent was recorded for the Hanalei District (including Kilauea). The present estimated population of 640 in the study area marks a severe decline over 125 years earlier (see Table 2). The combination of disease in the nineteenth century combined with the attractions of urban life were the more obvious explanations for this.

Table 1. Hanalei respondents by ethnicity, January 1972

Item	Ethnicity			
	Japanese	Haole	Other	Total
	---------- Percent ----------			
Household membership				
Head	53	57	61	58
Other	47	43	39	42
Total	100 (N=68)	100 (N=114)	100 (N=127)	100 (N=309)
Birthplace				
Kauai	81	3	57	42
Elsewhere-Hawaii	7	7	27	16
Mainland	--	86	6	34
Foreign	12	4	10	8
Total	100 (N=68)	100 (N=114)	100 (N=127)	100 (N=309)
Sex				
Male	49	39	46	44
Female	51	61	54	56
Total	100 (N=68)	100 (N=114)	100 (N=127)	100 (N=309)

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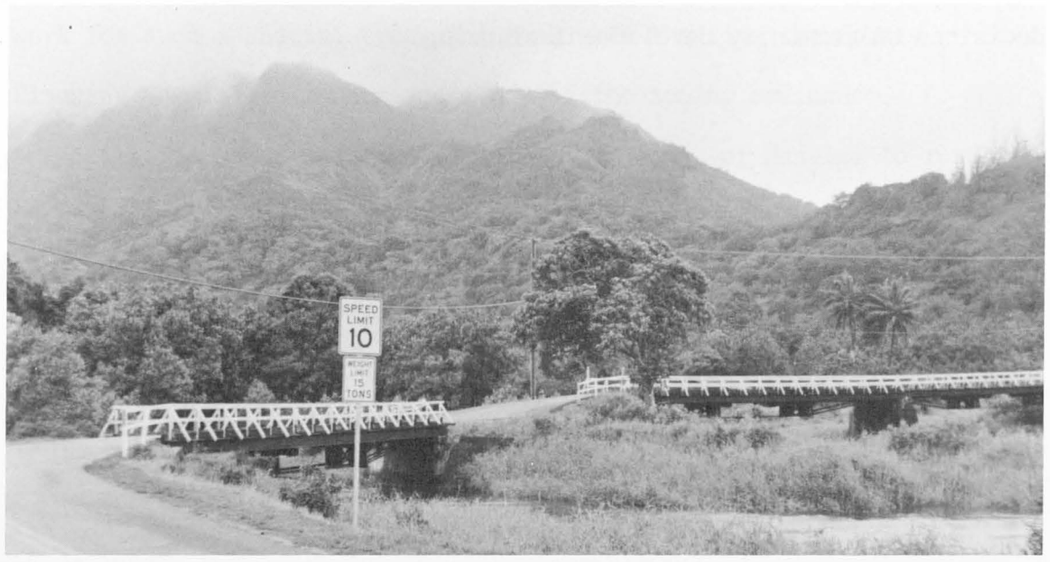

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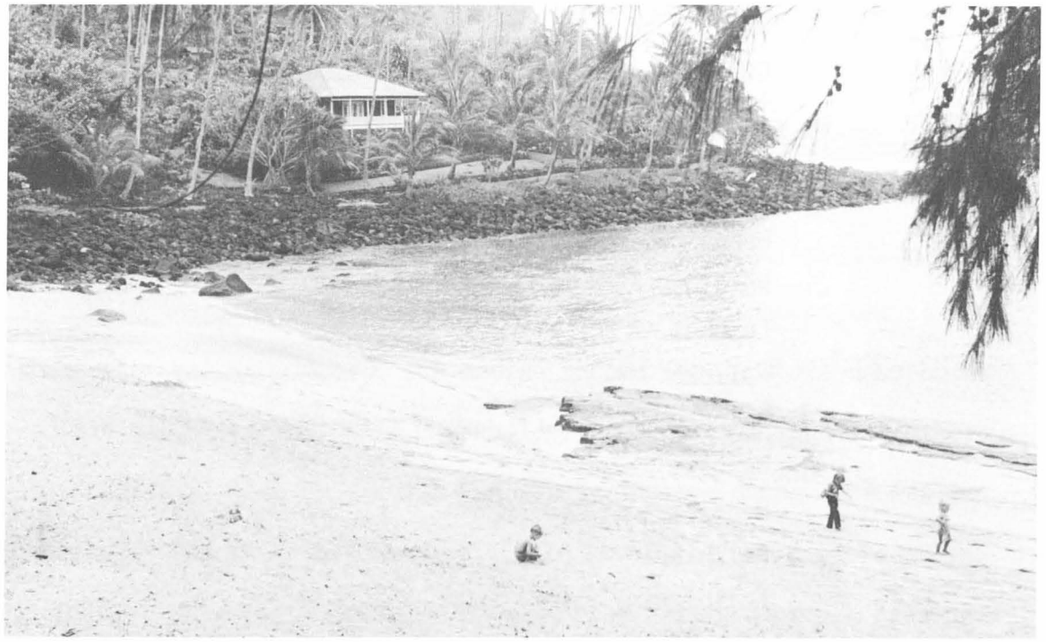

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Concentrated land ownership in the District as discussed elsewhere in this report with the resultant lack of opportunity was undoubtedly a further reason for population decline. The latter factors apparently remained strong forces, for the census showed a decline from 370 to 153 people in Hanalei town between 1960 and 1970.

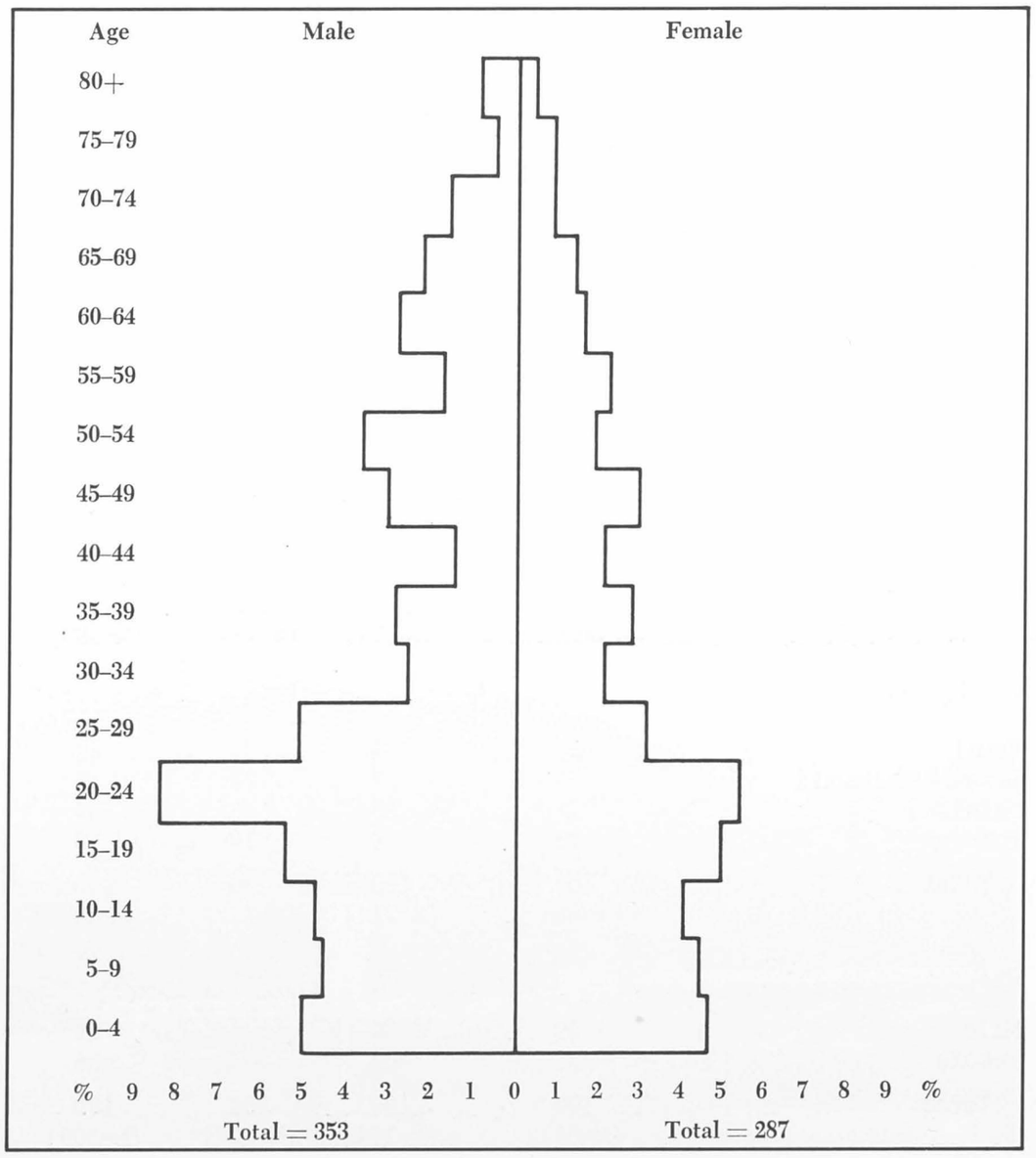


Figure 2. Age-sex pyramid.

Table 2. Population of North Shore Region, spring 1847

Place	Population
Kalalau	190
Haena	162
Wainiha	154
Lumahai	123
Waikoko	5
Waipa	66
Waioli	159
Hanalei	637
Kalihikai	87
Kalihiwai	78
Total	1661

Source: Robert C. Schmitt, "The Population of Northern Kauai in 1847," Hawaii Historical Review, Volume II, No. 3 (April 1966), p. 229.

In addition to shrinking, the population has also changed in composition. The age composition of the Japanese ethnic group shows that the younger members of the group have left the community; half the adult Japanese interviewed had lived in the community for more than 41 years. This compares most strikingly with the large number of younger Haoles who have recently moved into the community; half the Haoles interviewed had lived in the area for less than 3 years. The latter group does not include anyone not living in a permanent structure, thus excluding those who were clearly "transients." The

age and residency backgrounds of the ethnic groups is further reflected in the years of formal schooling achieved. Half of the Japanese had completed less than 9 years while half of the Haoles had more than 2 years of college. The remainder of the respondents, mostly Hawaiian and mixed Hawaiian, had a median level of 12 years of education.

With respect to household income the Japanese had higher levels than other ethnic groups. The median income for Japanese households was $14,428 while for Haole households it was $8,076, and for others it was $8,772. One reason for the larger incomes among Japanese households was that more members of the household are employed. In 1 out of 3 Japanese households there were at least 3 people earning over 10 percent of total household income while for Haole households, only 1 out of 10 had 3 income earners. In other ethnic groups, 1 of 5 households had 3 people earning income. Among other things, this indicates that extended families are more common among Japanese residents.

As far as employment is concerned, 50 percent of the adults interviewed held full time jobs. The other half were housewives, retired people, or are unemployed for some reason. Of the employed people 16 percent were in agriculture, 30 percent in tourism, 16 percent in government, and 38 percent in other employment. Some ethnic differences in employment stand out sharply. Japanese are heavily concentrated in agriculture (29 percent) and government (29 percent). Haoles are mostly in tourism (38 percent) and other employment (53 percent). Among the other ethnic groups nearly all the employment is in agriculture (50 percent) and tourism (30 percent).

A further word about the people in Hanalei is essential to the understanding of this study and how it was conducted. Not only is there a mixture of ethnic backgrounds but there is a substantial diversity in types of people and their reasons for being in Hanalei. A rough way to separate groups in the community is through length of residence. Long time residents can arbitrarily be defined as those who have lived in Hanalei longer than 10 years. This group includes most of the Hawaiians, Japanese and other miscellaneous ethnic groups and a few Haoles. A second group are those who have moved to Hanalei within the last 10 years with the intention of establishing permanent residency. Most of this group are Haole and include retired people and people employed at Princeville or who commute to Kapaa or Lihue to work. A third group, loosely defined as "transients," include those who have come to the community in the last three years without jobs. Nearly all are Haole and while a few have found employment, most are either unemployed or underemployed. Many live in temporary housing which may be only a lean-to shack.

The value systems of each of these groups are quite different in some respects from the others and there are even some differences within groups. The long-time residents form the basic core of the community and are primarily concerned with raising families and keeping the economy in motion. Among the newcomers who intend to remain in the area for a number of years, those with regular employment tend to be similar to the long-term residents in their personal and community objectives. At one extreme of the value systems are the retired or semi-retired Haoles and even a few who are not yet near retirement.

They see Hanalei as the place they were lucky enough to find to get away from the rest of the world and they want to keep it that way. They resent the presence of the "transients," whose values they neither understand nor agree with. They would like to see any new arrivals in the community be similar to themselves.

The objection to the "transients" is shared by many long-time residents but for slightly different reasons. They see the "transients" competing with local people for jobs and housing and in many cases the local people come out poorly in the competition. They also are concerned over the adverse influence of some of the transients on local youth who have not been exposed to problems of drugs and rapidly shifting moral values.

Long-time residents have another set of objections directed at the Haoles who have bought up beach-front property for residential use and who tend to treat the beach as their own. Life-time residents are accustomed to wide open beaches available to all for fishing, surfing, and other activities. They resent the "no trespassing" signs, the houses built right on the vegetation line, and the overall reduction in access to beaches.

The "transients" are by no means a homogeneous lot. The surf on the north shore attracts many young people with no visible means of support. Some family groups are in the "transient" category. If they find employment or other income sources, they may become permanent residents. Others live from day to day in tents or with friends or in primitive housing wherever they can find it. The turnover rate is high as people constantly come and go.

Nearly all of the transients are enamored of the natural scenic beauty and think of Hanalei as a quaint place still unsullied by civilization. Hence it should be preserved just as it is. This view can be in serious conflict with the views of long-term residents who are trying to provide for a family or keep their children near home after they grow up.

In addition to the fragmentation observed, further disagreement within the community is brought about by land speculation and the profit motive. Some land in Hanalei has been acquired for the sole purpose of selling at higher prices for resort development or other development possibilities. Not all these investors are from outside the community; some are long time County residents. The economics of land use planning can thus become very personal indeed.

The foregoing discussion of the community should not be taken to mean that the structure is irreparably fragmented. On the contrary, as will be shown in the following pages, there is widespread consensus on important issues. Indeed, it is this degree of agreement that makes possible the development of a plan for the future of the community. The major difficulty in formulating and administering such a plan will be the improvement of communication and dialog within the community. This will be a major responsibility of the citizen panel, the consultants, and County officials.

THE COMMUNITY SURVEY

Characteristics of the various segments of the population were related to attitudes held toward changes that have occurred in the community during the past 2 years and assessment of its needs for the future. Quite clearly, those who have resided in the community for a long period of time view some trends differently from those with residencies of short duration. Years of age, schooling, annual income, and individual attitudes held toward change also contributed to the formation of attitudes.

The Respondents

Table 3 directs attention to the different profiles of the Hanalei community. Youthfulness, education, limited income, and short term residencies are encountered primarily among the Haoles. In contrast, the majority of people of non-Haole ancestry are older with an association with the community extending over a substantial period of time. These people generally had 11 years of schooling or less, thereby suggesting a history of manual labor. More than

Table 3. Percentage distributions of respondents according to ethnicity, age, schooling, income, and tenure of residency in Hanalei

Variable	Total	Ethnicity			Years of age		Years of schooling		Annual income	
	Population (N = 309)	Japanese (N = 68)	Haole (N = 114)	Other (N = 127)	30 or less (N = 105)	Over 30 (N = 104)	11 or less (N = 118)	Over 11 (N = 191)	$9000 or less (N = 149)	Over $9000 (N = 150)
	Percent						Percent			
Age (years)										
30 or less	34	10	61	23	34	--	8	50	44	25
Over 30	66	90	39	77	--	66	92	50	56	75
Schooling (years)										
11 or less	38	69	6	50	9	54	38	--	42	33
Over 11	62	31	94	50	91	46	--	62	58	67
Household income										
$9000 or less	50	34	55	53	44	32	42	33	50	--
Over $9000	50	66	45	47	56	67	58	67	--	50
Residency (years)										
Short term										
3 or less	37	6	82	13	68	21	8	55	43	31
Over 3	65	94	18	87	32	79	92	45	57	69
Long Term										
Life	24	32	2	40	16	28	32	19	19	29
Less than life	76	68	98	60	84	72	68	81	81	71

half of the non-Haoles had incomes of $9000 or more, with 2 out of 3 people of Japanese ancestry reporting incomes of this magnitude.

Data shown suggest that the community is composed of individuals with divergent interests in the use of the resources of the community and divergent views of its needs. The fact that 89 percent of the non-Haoles had lived in the Hanalei area for more than 3 years, and 82 percent of the Haoles had moved into the region during the past 3 years indicates a mutual interest in the advantages of Hanalei whether for economic gain, the beauty of the area, climate, friendliness of the people, surfing, or other miscellaneous reasons. The fact remains, however, that basic differences exist in the composition of the adult population of Hanalei. Consideration of the future of the community and attitudes held toward change must be based in large part on both the differences and similarities of needs and priorities held by the residents of the community.

Attitudes held toward change

Attitudes are dispositions that influence action or points of view. They are products of experience and association and take a variety of forms. In Hanalei the study focused on the attitudes of residents toward change in the community and what kind of change they would like to see in the future. But before looking directly at attitudes about Hanalei, it is important to understand something about the factors that may be expected to influence those attitudes. Several things in addition to the demographic characteristics discussed were assumed to be relevant factors: people's overall attitudes about change in general, their birthplace, and their occupations. Of first importance in consideration of attitudes held toward Hanalei are those held toward change itself, irrespective of location. This assumes that general attitudes held are inherent elements of the way people view their own community. This assumption is given validity by the distributions of attitudes held toward change and their evident relationship to the characteristics of the respective segments of the population studied.

Table 4 shows percentage distributions of respondents according to levels of attitudes held toward change for sub-groups of the population studied by age, schooling, income, residency, and ethnicity. Relationships are shown to exist between attitudes held and the respective demographic characteristics. Indication of the existence of such relationships was also shown by the patterns that emerged in consideration of appraisals of changes during the past 2 years and assessment of community needs. The majority of respondents whose attitudes are oriented to limited change, and designated as "against change" in the table, are Haole respondents, 30 years of age or less, with more than 11 years of schooling and annual incomes of $9000 or more, and who have resided in the community 3 years or less or less than their entire lives. (See Appendix A for details of scaling for attitudes toward change.) This description does not eliminate the possibility of respondents who were in each of the other sub-groups from having been oriented to limited change, for such did occur as data show. Statistical tests indicated that significantly different distributions among respondents favorable and

Table 4. Percentage distributions of respondents by levels of attitude toward change for age, schooling, income, residency and ethnicity

Variable	Distributions		Total	
	Against change	For change	Percent	Number
	--------- Percent ---------			
* Age (years)				
30 or less	59	41	100	(105)
Over 30	43	57	100	(204)
* Schooling (years)				
11 or less	32	68	100	(118)
Over 11	58	42	100	(191)
Household income				
$9000 or less	47	53	100	(149)
Over $9000	51	49	100	(150)
Residency (years)				
* Short term				
3 or less	60	40	100	(114)
Over 3	42	58	100	(195)
Long term				
Less than life	52	48	100	(234)
Life	37	63	100	(75)
* Ethnicity				
Japanese	38	62	100	(68)
Haole	63	37	100	(114)
Other	40	60	100	(127)

* Differences in distributions are statistically significant at the .05 level.

unfavorable toward change were found on the basis of age, schooling, short term residency, and ethnicity.

Further examination of the data indicates areas of potential conflict as related to the use of resources of the community. Respondents favorable to change may be interested in change for a variety of reasons such as economic gain, personal advantages that may assure improved opportunities for family life, and community welfare. In contrast, respondents less favorable to change are more interested in the preservation of the natural environment, with less concern for economic gain.

Place of birth

Percentage distributions of respondents by place of birth, as shown in Table 5, indicate clearly defined patterns. Data show people born on Kauai occurring in greatest proportions in the groups over 30 years of age, with 11 years or less of schooling, an annual income of $9000 or more, and residency in the Hanalei area of more than 3 years. Sixty-five percent of the non-Haoles were born on Kauai, 81 percent of whom were of Japanese ancestry and 57 percent in the "Other" category. A majority of the Kauai-born respondents are mature, with limited education, substantial incomes, and long tenure of residencies.

Respondents born on the Mainland comprised the majority of those 30 years of age or less, with more than 11 years of schooling, and residency of less than 3 years. This background is indicative of interests that generally may be expected to differ from respondents born in Kauai or elsewhere in Hawaii. Ethnicity is an additional difference, for 86 percent of the Haoles came from the Mainland.

Data show striking similarity of patterns of characteristics of respondents by levels of attitudes held toward change and place of

birth when examined in relation to demographic characteristics. It is evident that those attitudes are influenced by the backgrounds of the respective respondents and their interests and needs.

Table 5. Percentage distributions of respondents according to place of birth

Variable	Place of birth				Total	Number
	Kauai	Elsewhere in Hawaii	Mainland	Foreign		
	Percent					
Total population	42	16	34	8	100	(309)
Age (years)						
30 or less	25	12	60	3	100	(105)
Over 30	51	17	21	11	100	(204)
Schooling (years)						
11 or over	63	14	5	18	100	(118)
Over 11	39	16	52	3	100	(191)
Household income						
$9000 or less	31	15	39	15	100	(149)
Over $9000	51	17	30	2	100	(150)
Residency (years)						
Short term						
3 or less	9	11	75	10	100	(114)
Over 3	61	18	10	11	100	(195)
Long term						
Life	91	9	--	--	100	(75)
Less than life	26	18	45	11	100	(234)
Ethnicity						
Japanese	81	7	--	12	100	(68)
Haole	3	7	86	4	100	(114)
Other	57	27	6	10	100	(127)

Occupation

Occupational distributions of the respondents are shown in Tables 6 and 7. Half of the adults interviewed in Hanalei were employed full time while one out of five was engaged in a part-time occupation. The type of occupation and the extent of time devoted to it appear to be related, so these data are treated as a unit. (Distributions shown are only those between which differences occurred that were statistically significant at the .05 level or less. Thus, distributions in Table 6 omit distributions by age, while distributions by schooling are omitted in Table 7.)

In reviewing the contents of both tables, it is important to note the high proportion of respondents either not engaged in gainful employment or only on a part-time basis. No determination was made as to whether or not such respondents wished full-time employment. It also is important to note the variations that occur in the distributions by the demographic characteristics. The greatest differences occurred among respondents either not gainfully employed or employed only part-time. Whether full or part time, the proportions of respondents employed in the respective occupational categories were relatively small.

Attachment to the Community

Attachment to the community is a feeling by residents that may range from casual enjoyment of the environment to love of the people and the beauty of the area. Such attachments may be expressed in a variety of ways, some of which are concerned with home ownership,

Table 6. Percentage distributions of respondents according to type of full-time occupation

Variable	Type of Occupation							
	Self-employed agriculture	Other agriculture	Tourism	Government	Other	None	Total	Number
	Percent					Percent		
Total population	7	1	15	8	19	50	100	(309)
Ethnicity								
Japanese	13	--	6	13	13	55	100	(68)
Haole	--	1	18	3	25	53	100	(114)
Other	17	11	17	2	9	44	100	(127)
Schooling (years)								
11 or less	12	3	11	9	13	52	100	(118)
Over 11	3	1	17	1	3	48	100	(191)
Household income								
$9000 or less	7	1	16	5	11	60	100	(149)
Over $9000	6	1	13	13	29	38	100	(150)
Residency (years)								
Short term								
3 or less	--	--	19	3	27	51	100	(114)
Over 3	10	2	12	12	19	49	100	(195)
Long Term								
Life	8	5	20	17	17	32	100	(75)
Less than life	6	--	13	6	20	55	100	(234)

consideration of plans for moving to a new community, and ratings of the community as a place to live. Analyses of distributions of respondents according to each of these elements of life style provide additional understanding of the people of the Hanalei area.

Home-owner status

Home owners may be described as having deeper roots in the community than respondents who are not home owners due in part to the financial investment represented by the purchase and maintenance of a home. Distributions of respondents by home-owner status occur on a continuum which changes in accordance with the characteristics of the residents of households studied.

Of the 178 households covered by the survey, 44 percent of the homes were owned by the respondents; while 38 percent were rented, and 19 percent were occupied on the basis of a variety of types of

Table 7. Percentage distributions of respondents according to type of part-time occupation

Variable	Type of Occupation							
	Self-employed agriculture	Other agriculture	Tourism	Government	Other	None	Total	Number
	Percent					Percent		
Total population	6	2	4	--	12	76	100	(309)
Ethnicity								
Japanese	13	3	2	--	10	72	100	(68)
Haole	--	2	5	--	17	76	100	(114)
Other	9	4	1	--	8	78	100	(127)
Age (years)								
30 or less	--	3	6	--	19	72	100	(105)
Over 30	9	1	3	--	8	79	100	(204)
Household income								
$9000 or less	2	2	7	--	16	74	100	(149)
Over $9000	4	1	1	8	--	79	100	(150)
Residency (years)								
Short term								
3 or less	--	1	5	--	18	76	100	(114)
Over 3	10	2	3	--	9	76	100	(195)
Long term								
Life	15	--	7	--	8	70	100	(75)
Less than life	3	2	3	--	13	79	100	(234)

arrangement with the owner (see Table 8). Non-home owners were found in greatest proportions among Haoles, respondents with more than 11 years of schooling, 30 years of age and less, with incomes of less than $9000, and residency of three years or less. This also is the pattern of respondents disfavorably oriented toward change. These data suggest a relationship between the strength of ties to the community, as represented by financial investment in a home, association with the community over an extended period of time, and attitudes held toward it. This becomes evident in relation to consideration of plans for moving from Hanalei and vicinity to another community, for those with tenuous ties may give consideration to such plans more frequently than respondents with stronger community ties.

Table 8. Percentage distributions of respondents according to home-owner status and by ethnicity, schooling, age, income, and residency

Variable	Status			Total	Number
	Own	Rent	Other		
	Percent				
Total population	44	38	19	100	(309)
Ethnicity					
Japanese	68	16	16	100	(68)
Haole	24	59	18	100	(114)
Other	49	30	21	100	(127)
Schooling (years)					
11 or less	54	29	17	100	(118)
Over 11	37	43	20	100	(191)
Age (years)					
30 or less	23	57	20	100	(105)
Over 30	56	27	17	100	(204)
Household income					
$9000 or less	32	44	24	100	(149)
Over $9000	54	32	14	100	(150)
Residency (years)					
3 or less	17	60	23	100	(114)
Over 3	60	24	16	100	(195)
Life	53	21	25	100	(75)
Less than life	40	43	17	100	(234)

Discussion of moves and likelihood of moves

Tables 9 and 10 report distributions of respondents by consideration given to moving from the community and the likelihood of such moves occurring. Data shown in each of the tables indicate that the majority of respondents had neither discussed moving in the past year nor plan to move from the Hanalei area. This is not to say that moves had never been discussed nor that they will not occur; instead the reference is to the high proportion of respondents whose attachment to the community was such that plans for moving had neither been made nor contemplated.

Those who reported having made such plans, or giving consideration to them, appear to have been respondents with weaker ties to the community. Reference to Tables 9 and 10 will show the greatest proportions of these respondents to be Haoles, and respondents with more than 11

Table 9. Percentage distributions of respondents according to reported discussions of moving from the community

Variable	Discuss moving			Total	Number
	Yes	No	Undecided or no response		
	Percent				
Total	36	76	2	100	(309)
Ethnicity					
Japanese	4	96	--	100	(68)
Haole	41	54	5	100	(114)
Other	15	85	--	100	(127)
Schooling (years)					
11 or less	6	94	--	100	(118)
Over 11	32	65	3	100	(191)
Age (years)					
30 or less	45	54	1	100	(105)
More than 30	22	87	1	100	(204)
Residency (years)					
3 or less	40	55	5	100	(114)
Over 3	12	88	--	100	(195)
Life	9	91	--	100	(75)
Less than life	27	71	2	100	(234)

Table 10. Percentage distributions of respondents reporting discussion of moving from the community

Variable	Likelihood of moving				No or no reply	Total	Number
	Probable	Possible	Not likely	Undecided			
	Percent					Percent	
Total	10	7	5	1	77	100	(309)
Ethnicity							
Japanese	--	1	1	--	97	100	(68)
Haole	18	17	6	1	58	100	(114)
Other	8	1	6	1	84	100	(127)
Schooling (years)							
11 or less	1	1	4	1	93	100	(118)
Over 11	16	10	6	1	67	100	(191)
Age (years)							
30 or less	20	14	10	1	55	100	(105)
Over 30	5	3	3	1	88	100	(204)
Residency (years)							
3 or less	17	15	7	1	60	100	(114)
Over 3	6	2	4	1	87	100	(195)
Life	7	--	3	--	89	100	(75)
Less than life	11	9	6	1	73	100	(234)

years of schooling, 30 years of age and under, and a residency of 3 years or less. Thus, the pattern of respondents with weaker community ties is similar to the patterns of respondents oriented to low levels of change and residents who do not own their homes. While they generally agreed that Hanalei is a good place to live, data make it evident that moving to another community was in the minds of almost three out of eight. Attachment of these respondents to the community may be described as dependent on the strength of attractions to other communities and opportunities they offer.

Rating of Hanalei as a place to live

In contrast to respondents considering moving out of the Hanalei community are a high proportion of the total who apparently plan to continue living in the area. Irrespective of plans for moving, the overwhelming majority rated the community as a good place to live (see Table 11). Differences in distributions between the sub-groups of the demographic characteristics were not statistically significant, except that a significant difference between distributions of respondents with residences in the community of 3 years and less, and those over 3 years

Table 11. Percentage distributions of community ratings

Rating	Total	Residency	
		3 yrs or less	Over 3 yrs
		Percent	
Excellent	53	64	47
Good	37	28	42
Only fair	8	7	9
Poor	2	1	2
Undecided	--	--	--
Total	100	100	100
	(N=309)	(N=114)	(N=195)

did occur. The fact that a lower percentage of respondents with residencies of longer tenure rated the community as excellent is not surprising. This fact may be indicative of a lack of knowledge on the part of long-term residents of the nature of opportunities in other communities. In any case, the reasons most frequently given for enjoying the community were the scenic beauty and the peace and quiet of the rural environment.

Views of Change in Hanalei

Appraisals of change in Hanalei were based on changes that had occurred in the community during the past 2 years, a period of sufficient length for purposes of comparison but recent enough for recall. Those moving to the community recently were without bases for comparison of trends, hence were often unable to express opinions. Appraisals were categorized as (1) better, (2) worse, or (3) same or no opinion. Differences between distributions in the sub-groups by age, years of schooling, income, and long term residency were not statistically significant. These distributions closely resembled the distribution of appraisals by the total population of respondents and consequently are not discussed in detail.

Figure 3 shows that about 3 out of 10 respondents appraised the Hanalei community better than it was at the beginning of 1970 compared with close to 4 out of 10 who rated it as worse. Twenty-nine percent reported either having failed to observe changes or were undecided with respect to changes that had occurred. While proportions rating change were fairly equally distributed, data show differences in opinion on changes that have occurred in the community.

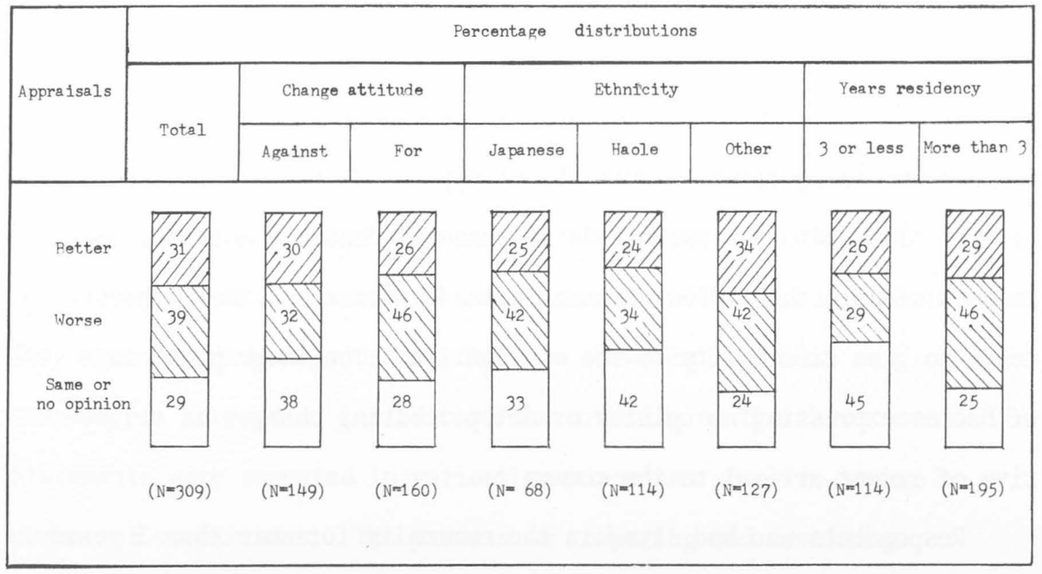


Figure 3. Percentage distributions of respondents' appraisals of community change.

Figure 3 shows a disparity in views held by the respective against- and for- change groups. The largest segment of the against-change group evidently was unaware of changes in the community in contrast to the largest segment of the for-change group which viewed changes as worse. Those in the for-change group presumably failed to respond favorably to changes because of dissatisfaction with community trends and developments. In both instances, respondents appraising conditions as better represented the smallest proportions of the respective sub-groups.

Differences between the distributions of respondents of Japanese ancestry and those categorized as "Other" are indicative of different factors influencing these two groups, particularly with reference to proportions that appraised changes as better. Some bases for the judgments of the respective ethnic groups are found in the relative proportions with annual incomes of less than $9000. It is appropriate to assume that people with lower incomes would consider community conditions to be improving if changes occurring contribute to an improved economic status. This may account for the higher proportions of respondents categorized as "Other" who appraised changes occurring as better. The fact that two-thirds of those of Japanese ancestry had incomes of more than $9000 compared with 47 percent of the "Others" tends to give credibility to the explanation. The large percentage of Haoles expressing no opinion or not perceiving changes is reflective of recent arrival to the community.

Respondents who had lived in the community for more than 3 years and viewed changes as undesirable doubtless based their judgments on nostalgic recollections of the serenity and beauty of the area accompanied by a minimum of confusion. Those who viewed changes favorably may have reached these conclusions on the basis of increased economic opportunity. With respect to attitudes held by residents of 3 years or less, it is apparent that tenure of residency was often insufficient to permit the formation of opinions. Irrespective of the influence of residency they acquire more precise definitions when examined in relation to levels of attitude held toward change.

Figure 4 shows the appraisals of community change on the basis of length of residency combined with basic attitudes toward change. As discussed further in Appendix A, the attitudinal measurement is an indication on the part of the respondent concerning his capability of coping with change. This self-perceived capability is the product of experiences over a lifetime and thus may not be greatly affected by recent events that are not typical of many other experiences. As noted in the figure, there was no significant difference among residents who had been in the community more than 3 years, despite differences concerning their basic attitudes toward change. However, among those who had resided in the community 3 years or less, basic attitudes toward change made a significant difference in their evaluation of actual changes in Hanalei over the past 2 years. Forty percent of those who had indicated a self-perceived capability to cope successfully with change indicated that actual changes in Hanalei had made the community a worse place to live. On the other hand, only 22 percent of those evidencing a lesser ability to cope with change

felt the community had become a worse place to live. A possible explanation of these findings is that many recent in-migrants had experienced influence and power in other communities, but have yet to develop such influence over changes in Hanalei.

Differences in appraisals of change that could be attributed to basic attitudes toward change were not significant among other sub-groups based on ethnicity, age, education, and income. Basic attitudes toward change were significant only among respondents who had lived in Hanalei 3 years or less.

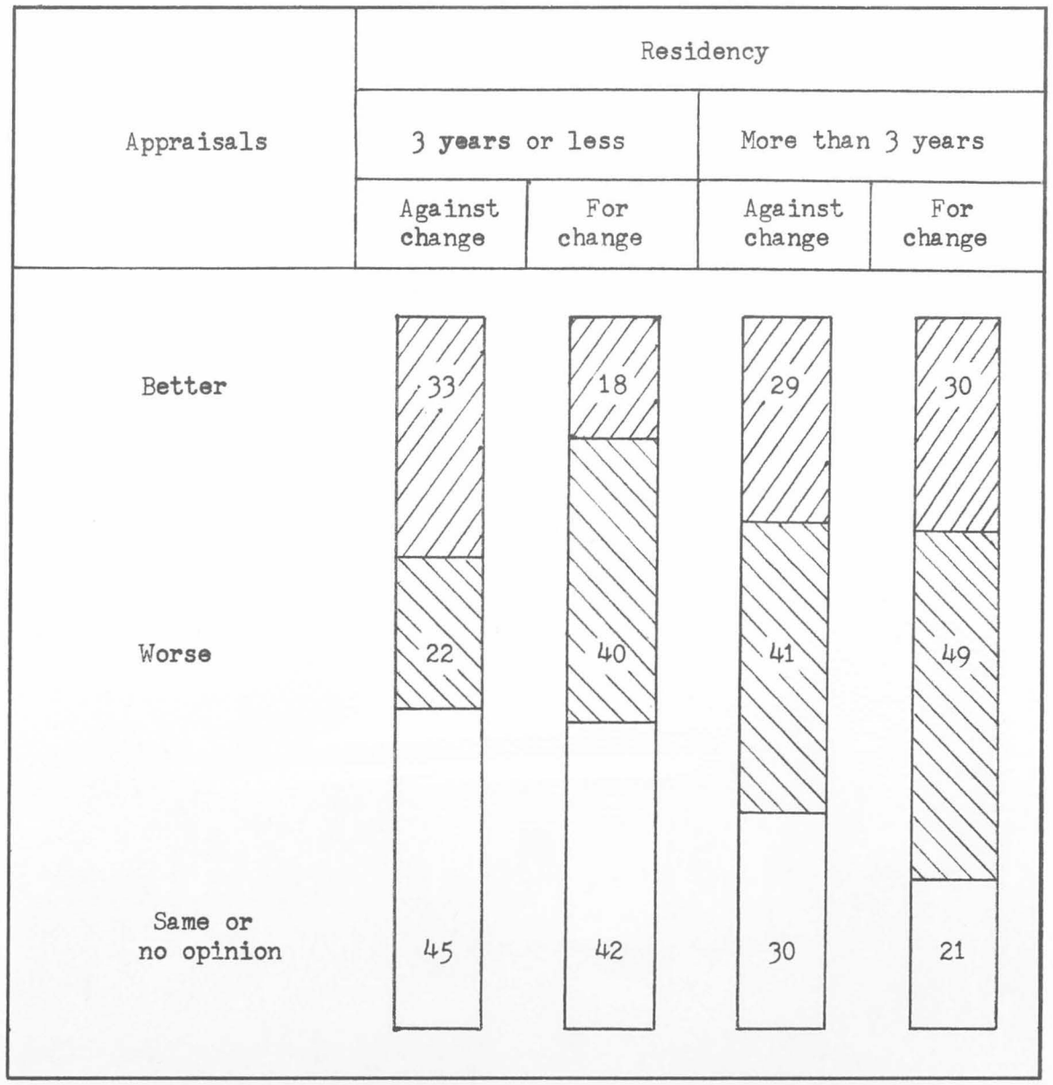


Figure 4. Percentage distributions of respondents' appraisals of community change.

The reason most frequently given for saying the community had become a better place to live was increased economic opportunity, largely in the tourism and recreation industry. The influx of people, particularly "transients," and declining employment and income in agriculture were the most frequent reasons for saying the community had become a worse place in which to live. In some cases people were pleased with the nature of change, particularly improvements in economic opportunity, but they expressed impatience with the slow rate of improvement.

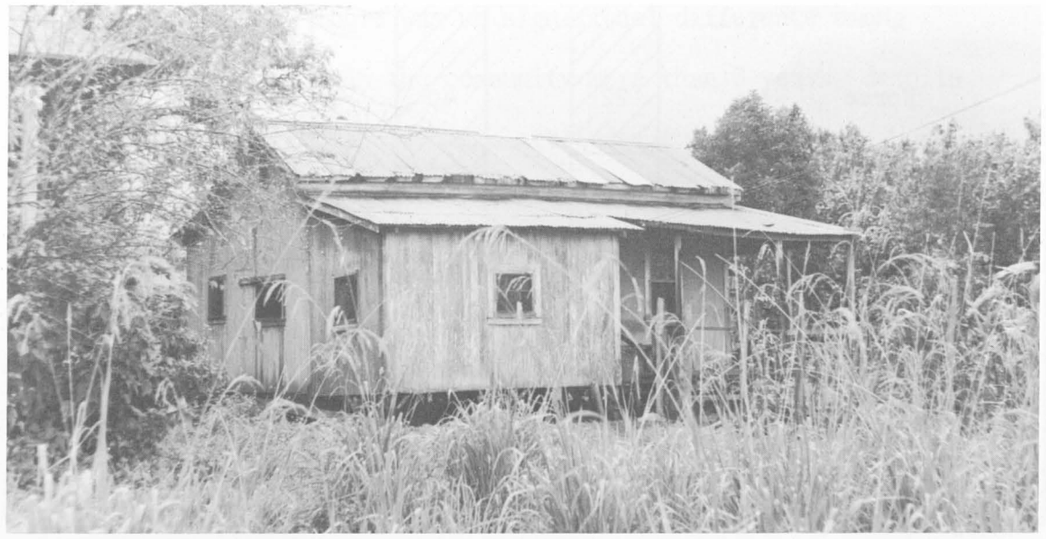
Community Needs

The preceding discussion of the attitudes and characteristics of the 309 residents interviewed is a necessary background to understanding the priorities assigned by the respondents to various needs within the community. It was impossible to discuss an exhaustive list of such needs with each person, so a selected list was used to serve as a guideline to planners and the citizens' committee in working out detailed programs. A total of ten statements were used in the survey. They were grouped in groups of three as shown in Table 12, and respondents were asked to indicate the ordering of the three needs. Statements were repeated in various combinations so as to secure a number of comparisons. The process of comparing and combining rankings by individuals is explained in Appendix A.

The general picture that emerges from the identification of priorities is that a majority of the residents prefer a community characterized by pastoral beauty, yet one that will provide a life-style that includes adequate housing, certain community services, and procedures for influencing future developments. Least desired was

Table 12. Percentage responses to community priority statements

Statement groupings			Priorities		
			First	Second	Third
A.	1.	Opportunities for young people to stay in Hanalei after high school graduation.	23	23	54
	2.	Keep the beauty of Hanalei as it is.	41	34	25
	3.	Keep agriculture as an important activity in Hanalei.	37	43	20
B.	1.	Development of resort areas, even if some agricultural land has to be given up.	11	16	73
	2.	Ease in getting to shopping centers and medical services.	43	44	13
	3.	Better housing.	47	39	14
C.	1.	Recreational opportunities for youth in Hanalei.	39	32	29
	2.	Chances for residents of Hanalie to meet and discuss their community needs.	29	46	25
	3.	Keep the number of people in Hanalei about the same.	33	22	45
D.	1.	Keep the beauty of Hanalei as it is.	70	22	8
	2.	Opportunities for family outdoor recreation.	22	64	14
	3.	Development of resort areas, even if some agricultural land has to be given up.	10	14	76
E.	1.	Opportunities for young people to stay in Hanalei after high school graduation.	46	24	30
	2.	Recreational opportunities for youth in Hanalei.	16	43	41
	3.	Better housing.	39	32	39
F.	1.	Ease in getting to shopping centers and medical services.	41	23	36
	2.	Keep the beauty of Hanalei as it is.	44	44	12
	3.	Keep the number of people in Hanalei about the same.	11	36	53
G.	1.	Keep agriculture as an important activity in Hanalei.	65	20	15
	2.	Ease in getting to shopping centers and medical services.	22	43	35
	3.	Recreational opportunities for youth in Hanalei.	15	36	49

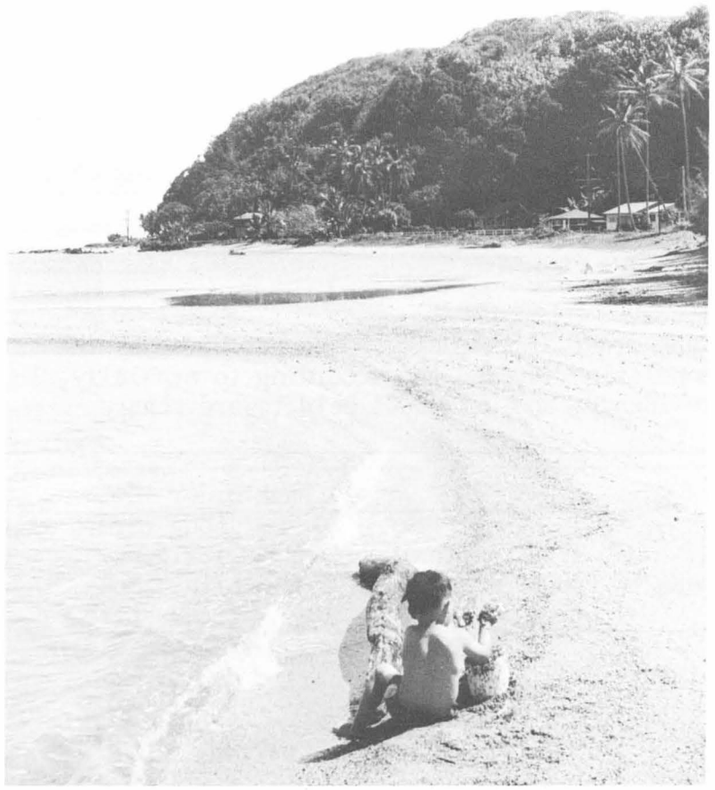


Inadequate housing is an acute problem in Hanalei, particularly for the elderly.

further resort development beyond that presently anticipated in the near future at Princeville. Aggregated rankings are shown in Table 13. It is important to note that there was a greater difference between items 2 and 3 in Table 13 than between 3 and 7. Such differences are the basis for establishing the priority groupings shown in the table. The ordering seems fairly logical in that poorly planned resort development would likely damage both agriculture and the scenic beauty of the region. While the five needs grouped as medium priority are considered important, fulfillment is not desired

Table 13. Ranking of community needs by respondents in Hanalei

Community needs	All residents ranking	
Keep agriculture as an important activity in Hanalei	1	High priority
Keep the scenic beauty	2	
Better housing	3	
Ease in getting to shopping and medical services	4	
Opportunities for family outdoor recreation	5	Medium priority
Chance for residents to meet and discuss community needs	6	
Opportunity for youth to stay in area after high school	7	
Opportunities for youth recreation	8	Low priority
Keep the population the same	9	
Resort development even if some agricultural land is given up	10	Undesirable



Anini Beach is seldom used by tourists.

at the cost of worsening the needs given top priority. Recognition of existing youth recreation opportunities has caused this need to be given low priority. Similarly, recognition that there is no effective way to keep people from moving into the community was frequently given as the reason for assigning low priority to limiting the population.

Surprisingly, there were very few differences in the rankings given by various sub-groups of respondents. Age, education, and income did not cause any significant differences in ranking community needs. This means that such factors do not consistently cause people to view community needs in any certain way.

Differences in ranking

Table 14 shows the rank order of community needs in relation to characteristics associated with significant differences in ranking. Although respondents of Japanese ancestry did not rank needs significantly different than did Haoles or the remaining portion of the respondents (mostly Hawaiian and mixed Hawaiian), there were significant differences between the latter two groups. As shown in the table, Haoles emphasized scenic beauty, housing, and then agriculture in contrast to "Others" emphasizing agriculture, scenic beauty, and access to shopping and medical facilities. It would appear that Haoles viewed agriculture as an important element in their enjoyment of the environment, particularly since practically none received income directly from agricultural employment. Those grouped in the "Others" category valued the scenic beauty, but agriculture was of primary importance due to its economic effects on their lives.

Table 14. Rank order of community needs perceived by the total population studied and according to ethnicity, long-term residency, and attitudes held toward change

Community Needs	Rank order						
	Total Population	Ethnic groups		Long-term residency		Attitudes--change	
		Haole	Other	Life-time	Non-Life	Against	For
Keep agriculture	1	3	1	2	2	3	3
Beauty of Hanalei	2	1	2.5	9	1	2	1
Better housing	3	2	7	5	3	4	4
Shopping centers and medical facilities	4	6	2.5	8	6	7	5
Family outdoor recreation	5	4	6	3	5	6	6
Residents meet	6	5	5	4	4	5	8
Opportunities for youth	7	9	4	1	7	1	7
Recreation for youth	8	7	8	6	8	8	2
Population same	9	8	9	7	9	9	9
Resort development	10	10	10	10	10	10	10

Haoles also placed a lower priority on economic opportunities for youth after high school than did the other group. The difference in ranking given to better housing suggests that Haoles are experiencing poor quality housing due to recent in-migration and low income levels. They tended to apply higher standards derived from Mainland experiences than did long-time residents of the community. Both groups agreed to assign further resort development to the bottom priority. This was consistent with all other sub-groups.

The priority given to scenic beauty by the entire community dropped to ninth place when ranked by the one-quarter of the respondents who had lived in the community their entire lives. In contrast, they give first ranking to improved economic opportunities that would enable their children to remain within the community. These differences in opinion are the underlying causes of much of the divisiveness and controversy within the community that has surfaced in the past several years. On a more positive vein, they seem fairly well in agreement on other issues. One possible inter-

pretation for the low ranking assigned to scenic beauty by lifetime residents is that they simply take it for granted due to their limited experiences in other places. It is less easy to explain the low ranking given by lifetime residents to resort development combined with the high ranking of improved economic opportunity for their children. Aside from agriculture, which will provide few jobs in any case, tourism seems the most likely candidate for providing more employment, even though the jobs are less prestigious than might be desired.

Basic attitudes toward change

Basic attitudes toward change, as indicated in Table 14, were associated with differences in opportunities for youth. Respondents receptive to change gave relatively greater importance to recreation in contrast to employment opportunities which were emphasized by respondents who were less receptive to change. The latter group was thus anxious to have their offspring near them, whereas those more receptive to change were more anxious for youth to have experiences that would further prepare them for successful lives elsewhere.

Basic attitudes toward change also are associated with differences in rankings within sub-groups of Haoles, respondents under 30 years of age, those less educated, and respondents with high incomes. Analysis of basic attitudes toward change did not result in significant differences in rankings among other sub-groups. Table 15 shows the rankings given to community needs by Haoles who are categorized by basic attitudes toward change. Haoles less receptive to change did not differ significantly in their rankings as compared to the total population. However, the Haoles who were classified as being more receptive to change differed in their lack of emphasis on better housing and their greater emphasis on population limitations. Recalling that receptivity to change as a basic attitude was characterized by older ages and education beyond high school, it is apparent that this group was constituted of retired Haoles with fairly high levels of wealth. It is no surprise that they wish to

Table 15. Rank order of community needs perceived by Haole respondents and those 30 years and less according to levels of attitudes held toward change

Community needs	Haole respondents		Age 30 yrs or less	
	Against Change	For Change	Against Change	For Change
Keep agriculture	3	2	5	3
Beauty of Hanalei	1	1	1	1
Better housing	2	9	9	2
Shopping centers and medical services	6	7	2	8
Family outdoor recreation	5	3	3	4
Residents meet	4	5.5	4	6.5
Opportunities for youth	9	8	7	9
Recreation for youth	7	5.5	6	6.5
Population same	8	4	8	5
Resort development	10	10	10	10

maintain the rural atmosphere that attracted them to Hanalei and that they have little concern with better housing since they are comfortably housed.

Differences in priorities among respondents ages 30 and under again occur in the cases of better housing and population limitations. However, in this case, the effect of basic attitudes toward change is different. As shown in Table 15, it was the people judged more receptive to change who emphasized better housing. The same difference concerning population limitations existed in the 30-and-under group as it did among Haoles. A third difference concerned access to shopping and medical facilities as evaluated within this age group. Associated factors of low income and the inability to secure transportation through friends and acquaintances likely

The rural character of Hanalei Town is denoted by the taro fields bordering its main street.

Table 16. Rank order of community needs perceived by respondents according to levels of attitudes held toward change using schooling and income as test variables

Community needs	Schooling 11 years or less		Income $9000 or more	
	Against change	For change	Against change	For change
Keep agriculture	1	1	2	2
Beauty of Hanalei	2.5	4	1	1
Better housing	4	8	8	4
Shopping centers and medical services	2.5	3	5	5
Family outdoor recreation	5	5	9	3
Residents meet	7.5	7	3	8
Opportunities for youth	7.5	6	4	6
Recreation for youth	9	9	6	9
Population same	6	2	7	7
Resort development	10	10	10	10

accounts for the emphasis given this item by those less receptive to change.

Table 16 shows the relationships between the ordering of community needs and basic attitudes toward change among those with less than a high school education. The differences in rankings are similar to those encountered among Haoles as a group, and for similar reasons. Despite comparatively low educational backgrounds, the group classified as being receptive to change on the basis of having benefitted or successfully coped with it in the past are now

financially secure and reasonably content with the present makeup of the community. They thus relatively de-emphasize better housing and emphasize population limitations.

Basic attitudes toward change have the reverse effect with regard to housing priorities among respondents with household incomes above $9000 (see Table 16). There appears to be no obvious explanations for this, nor for the great difference in emphasis on both family outdoor recreation and opportunities for employment and recreation for youth. The comparative lack of emphasis by those more receptive to change with regard to a need for residents to meet to discuss community problems is explained by their past success in coping with and influencing changes. Those who have felt frustrated in the past desire to see more participative procedures for community decision-making.

Views of youth

As a subsidiary part of the survey of adult residents, interviews were completed with 20 high-school-age youth residing in the Hanalei community. As indicated in Table 17, the youth agree with the adults that maintenance of natural scenic beauty is of high priority and that further resort development should be placed at the bottom of the priority listing. As anticipated, the youth gave much higher priority to opportunities for youth recreation than did their elders. It was mistakenly anticipated that the youth would give higher priority to opportunities to remain in the community following high school. Only 9 out of 20 indicated they expected to continue residing in Hanalei as adults and another 5 said they would probably remain in Kauai County. Three indicated expectations of living in Honolulu and 3 felt they would leave the State. The relative lack of emphasis given to opportunities to remain in the community, particularly in comparison with the priority given to the statement by lifetime adult residents, is thus somewhat contradictory with their present residency intentions.

Plans of high school youth likely change to a great extent by the time they are age 25. Part of this change involves career plans, but present aspirations and expectations at least show some likeli-

Table 17. Ranking of community needs by youth in Hanalei

Community needs	Ranking	
Keep the scenic beauty	1	High Priority
Opportunities for youth recreation	2	
Keep agriculture as an important activity in Hanalei	3	
Opportunity for youth to stay in area after high school	4	
Ease in getting to shopping and medical services	5.5	Medium Priority
Opportunities for family outdoor recreation	5.5	
Better housing	7	
Chance for residents to meet and discuss community needs	8.5	Low Priority
Keep the population the same	8.5	
Resort development even if some agricultural land is given up	10	Undesirable

Table 18. Career orientations of Hanalei youth, January, 1972

Males			
Expectation	Frequency	Aspiration	Frequency
Farmer	1	Automobile mechanic	1
Automobile mechanic	3	Fisherman	1
Bellboy	1	Airline pilot	1
Carpenter	2	Carpenter	1
Hotel maintenance	1	Professional surfer	2
Psychiatrist	1	Land developer	1
No response	2	Farmer	1
		Unemployed	1
		No response	2

Females			
Expectation	Frequency	Aspiration	Frequency
Waitress	1	Housewife	1
Nurse	1	Secretary	2
Social worker	1	Stewardess	1
Computer programmer	1	Foreign service	1
Secretary	1	Teacher	1
No response	4	Land developer	1
		No response	2

hood of future activities. Table 18 shows a detailed breakdown of the responses of the 20 students when asked what careers they expected to pursue and what careers they would most prefer if obstacles did not prevent attainment. Comparison with data gathered from graduating seniors in the same high school in 1970

Several overlapping groups were found to exist within the community, although boundaries between groups were not sharply defined and there were differences of opinion within each group. The first group might be identified as traditionalists. Members of this group were mostly of Japanese, Hawaiian, and Filipino ancestry who had resided in the community for many years. They have seen few of the youth remain in the community, thus causing them great dissatisfaction, even though they are at least vaguely resentful of youth arriving from the Mainland. Their dominance of political and social decisions in the community is now threatened by the influx of youth as well as suggest that the prestige of the careers sought by Hanalei youth is substantially lower than their peers, although differences in age and in the date of the survey make comparisons difficult. In any case, most of the career expectations of Hanalei youth conceivably could be fulfilled without them being forced to leave the community.

Summary

The survey of residents of the community was undertaken with the major purpose of identifying the needs and priorities of the people in the Hanalei area. In order to further understand these needs and priorities, information concerning the respondents' attitudes and personal characteristics was also gathered. A total of 309 adults in 178 households were interviewed. Residents in 18 homes were not interviewed due to absence, illness in the home, problems with time schedules, or refusal.

by incoming older Haoles who tend to be relatively outspoken in their opinion.

The second group might be identified as refugees who have moved to the area to protect or further develop a way of life they have experienced but now see threatened or made impossible by conditions in many urban areas. Members of this group are generally of Haole ethnicity and relatively affluent. They are able to purchase property, and then often attempt to control its use with greater vigor than is traditionally the practice within the community. They are most anxious for the community to preserve the paradise they have found, but admission to the community power structure has been greatly resisted by the traditionalist group. They at times have thus found themselves aligned with the third group of younger Haoles in their attempts to prevent deterioration of natural scenic beauty.

The third group may be termed the escapist group. Members of this group are young Haoles recently arrived from the Mainland. They seldom if ever had been able to pursue their presently desired life-style in urban locations. There is a high turnover rate within this group, partly because their lack of property allows them easily to move elsewhere. The refugee group tends to be most hostile to this group, for they see them as representative of many of the reasons that drove them to come to Hanalei. The alliance of the two groups on the issue of environmental protection is borne of necessity in the face of lack of concern over this issue by the traditionalist group. The escapist group is perhaps less homogeneous than the other two, for some are involved in surfing, some in consumption of drugs, some are simply emotionally disturbed, and others are on vacation for varying periods of time.

The old pier in Hanalei Bay was used by the sugar plantations for onloading sugarcane.

The fragmentation of the community results in surprisingly little disagreement over a wide range of issues. Data show acceptable levels of agreement that further resort development should be approved only with extreme caution, for the natural scenic beauty as complemented by agricultural land use is of paramount importance to residents in the area. Nevertheless, people presently have differing purposes for residing in Hanalei and thus conflicts will continue to develop. Stronger efforts in communication within the community would be of help in resolving these conflicts. Use of the citizen panel derived from the survey results is a major step in that direction. Such discussion is further strengthened by dissemination of information concerning the community and its future. This report is a major step in that direction. Whatever actions are finally taken, even when conditioned by the procedures just mentioned, it is safe to say that everyone will not be pleased with the results.

Agriculture

When asked about community needs and problems, the people of Hanalei gave strong support to the preservation of agriculture as an important activity in the community. Regardless of how the population is segmented or grouped they still place great importance on agriculture in the area. Why, in a time when other occupations offer higher incomes, do people in Hanalei wish to preserve the agricultural base? After all, agricultural land might create more jobs, more income, more business, and more people if it were converted into residential or commercial uses.

The answer is not simple. Agriculture in Hanalei is on a smaller scale than much of commercial agriculture and most of the farms are family operated. Therefore, the type of agriculture is much more personal and integrated into the entire community than would be the case under the plantation form of operation common elsewhere in Hawaii. There is a very close relationship between scenic beauty and agriculture; open space and growing crops offer a more pleasing environment than urban sprawl, even if it is small scale sprawl. The uncertainty of drastic changes and rapid economic development or population growth probably also is reflected in the desire to retain a viable agricultural community.

Agriculture in Hanalei at present means taro and cattle. They are the only commodities produced commercially even though in the past rice and vegetables were also important crops. This report provides a broad look at present and potential agriculture in the area. It also discusses some of the problems associated with maintaining or increasing the contribution of agriculture to the local economy. The taro industry is treated in greater detail in Appendix B. There are no obvious opportunities for agricultural growth in the area that would employ significant numbers of Hanalei residents.

Taro

There are about 30 taro farms in the Hanalei area producing a quarter of a million dollars worth of taro per year on 170 acres. Most of it is shipped to poi mills in Honolulu which is the largest market in the state. A small quantity is processed on Kauai for local consumption. Growing taro is physically demanding work and over half of the growers are part time farmers with other full time jobs. Thus they grow taro on small areas, usually less than 4 acres. The average age of taro producers is 52 years and young men are not entering the business. This raises the obvious question of who will grow the taro when the present generation retires over the next 10 or 15 years.

Several problems confront the taro industry and the long run viability of taro production will depend on whether or not solutions are found. Along with mechanization taro growers need some herbicides and fungicides for weed and disease control. None is now approved for use and the weeding must be done largely by hand. Mechanization and improved production technology are needed. The harvesting of taro

requires much labor and time. If mechanical harvesting were possible, the whole production process for taro would be altered. With present methods one man can grow up to 6 acres of taro, but with average prices of $7.50 per bag, he can earn an income of only about $7000 per year. For a man working full time and with a family to support, taro growing is not a very attractive choice when compared to some other alternatives.

Marketing and product promotion constitute another problem. The consumption of poi is slowly but steadily declining for several reasons. Other food products offering a variety of tastes, textures, and nutrition are available at reasonable prices and provide strong competition for poi. Most of the other products are well advertised and attractively packaged. The taro industry--growers, processors, or retailers--is not doing enough to expand demand or create new products from taro.

A final problem is the lack of communication or cooperation throughout the taro industry. The growers are mostly small independent operators and there is no grower organization. Without some leadership or organization to confront these problems, the industry will continue to decline in importance as fewer people eat poi, worn out processing facilities are phased out, and older growers leave the industry.

Cattle

Cattle are reported by about 10 farms in Hanalei with Princeville Ranch as the only major full-time commercial operation with about 2000 head. Pasture land is available in the Hanalei, Waikoko, Lumahai, and Wainiha valley areas. Much of it is used for cattle by part-time farmers. The Robinson ranch operation at Hanalei has several hundred cattle and a couple of employees. Most of the pasture land in the valleys was once used for rice or taro production and if the market for taro were to grow substantially, this land could be converted to taro without much difficulty. At present and for the foreseeable future, however, its best use will be for part-time cattle production.

More intensive cattle production is obviously possible in Hanalei, but there is not much chance of it being a full-time enterprise, except at Princeville. As a part time venture for people with other jobs, cattle raising offers some good opportunities to more fully utilize certain pasture lands. The obstacles to such an increase are to be found in land ownership and tenure arrangements, and property taxes based on higher uses, which may be too costly for the expected returns from cattle. Fencing and loading facilities are needed, but without the expectation of long term availability and profitable operation, the investment in these improvements is likely to be limited.

Although it is outside the Hanalei area, Metcalf Farms will provide some employment for people in agriculture and this will be of significant benefit to the entire north shore area. The sorghum being grown for cattle feed by Metcalf Farms is now largely shipped to Oahu or the Big Island to feedlots and dairies. Within a year, it is anticipated that both a feedlot with a capacity of at least

1000 head annually and a dairy herd will be in operation at Kilauea. These will provide the market for feed grains grown at Metcalf Farms. A slaughter plant is also envisioned so that live beef will not have to be shipped to Honolulu. This would have a proposed slaughter capacity of about 2500 head per year.

One obvious advantage to Hanalei from these developments will be the opportunity for part time farmers to produce feeder calves for the feedlot and to raise replacement heifers for the dairy operation. Pasture land in the Hanalei, Waikoko, and Wainiha valleys could be more intensively used for these purposes. This will provide some additional part-time employment to people with access to land and the inclination to raise cattle.

Vegetables

Most of the valley land would be well suited to truck crops and the market for fresh vegetables could probably be exploited with the right combination of management and marketing skills. People with such skills are few, particularly in Kauai County. There is no possibility of competing with the Mainland for processing vegetables or small fruits, but the fresh products market may be within reach.

There are also some problems with vegetables, but they need not be limiting. Vegetable production is not well suited to extremely small or part time production because an effective job of marketing requires a consistently high quality product regularly supplied. A backyard garden is not suited to this kind of production and marketing. Labor could also be a limiting factor, much as is the case with taro growing. For the right person, with ambition and a willingness to work and learn, there are some good possibilities for fresh vegetable production. A marketing cooperative or some other joint organization among several growers would be possible to coordinate production with available markets.

Prawns and catfish

In 1965 the State Division of Fish and Game in Hawaii imported 36 Malaysian prawns (Macrobrachium Rosenbergii) as the basis for a possible prawn industry in Hawaii. Since then they have conducted research on hatching and rearing prawns commercially. Two men in the Hanalei area have been cooperators with the State in this project.

Ponds are needed with a depth of 1 to 3 feet which can be drained for harvesting. Preliminary information suggests that 1000 pounds or more per acre can be produced with a value of somewhere between $2-$3 per pound. The labor requirements are limited to feeding, harvesting, and pond maintenance. It could be either a part time or full time business. If land now in taro goes out of production, some of it might be suited to aquaculture because the paddy system could be converted to ponds. The market for prawns is probably good although this study was limited. The hotel and restaurant trade would be quite large in Hawaii and there is even the possibility of exporting to the Mainland.

Breeding and hatching prawns is a very specialized operation and should probably not be done by each producer. The technology for this has been developed by the State Fish and Game project. The water must have the correct salinity and other special problems must be met. No attempt is made here to describe the technology of prawn production. Detailed information for prawn production is available in a paper by T. Fujimura and H. Okamoto, "Notes on Progress Made in Developing a Mass Culturing Technique for Macrobrachium Rosenbergii in Hawaii." This paper was presented at a conference of the Indo-Pacific Fisheries Council in November 1970 and can be obtained from the Division of Fish and Game. Another basic reference is "A General Account on the Biology of the Giant Freshwater Prawn, Macrobrachium Rosenbergii, and Methods for its Rearing and Culturing" by S. W. Ling, Fisheries Biologist of the Food and Agriculture Organization, United Nations.

Catfish are also a likely agricultural possibility for the Hanalei region. Whereas technology is the bottleneck in prawn raising, marketing and processing are the major problems in rearing catfish. The technology for rearing the fish is not highly sophisticated, but processing technology requires high skill levels and large amounts of capital. The market for fresh catfish is likely limited to the Filipino community; the relatively small numbers and low incomes of this group indicate a very limited market at present for fresh catfish. Frozen fish would be directed to a larger market, but processing low levels of production is costly. Present efforts on Maui to commercially rear catfish should demonstrate within the next several years the feasibility of such an operation in Hawaii.

Land Problems

As with nearly all agricultural areas, the problems of ownership, tenure, zoning, and taxes are important in Hanalei. Without long term tenure, people are not likely to invest the time or capital to develop markets or production facilities for vegetables, prawns, or any other new crop. There are pressures for non-agricultural development on some land in Hanalei that could otherwise be used in agriculture. Speculation for profit is a favorite activity by large and small investors. These factors operate against the expansion of agriculture in the community.

Hawaii is looked to by other states as a leader in rural land planning and zoning for agriculture, but there is overlapping authority, a lack of clearly defined public objectives, and no consensus on how best to achieve widely shared goals. Everyone seems to agree that "they" should do something to lower taxes on agricultural land, prevent undue speculation, create better zoning plans, etc. But there is no consensus on who the "they" really are and how "they" should accomplish these ends. It is a problem that simultaneously confronts county and state government and widespread cooperative effort will be required to solve it. That solution must involve the public in order to be acceptable and applicable.

Land market

Over three-fourths of the land in the Hanalei area (bounded by Kalihiwai Stream and the Na Pali Coast) is government owned. Most of this is State forest land in the mountainous areas and along the Na

Pali Coast. Tax maps show the distribution of ownership of private land to be as follows:

a) Residents of Hanalei district (includes land owned by hui having at least one person residing in the area and identified as addressee on notice of assessment)	2.47%
b) Kauai residents outside Hanalei	4.05%
c) Other residents of Hawaii	1.15%
d) Mainland U.S. and Guam	1.31%
e) Eagle County Development Corporation	11.32%
f) Plantations	37.62%
g) Bishop Estate	28.41%
h) Robinson Family	12.98%
i) Miscellaneous estates and trusts	.55%
j) All other	.14%
Total acreage	100.00%

These figures are in terms of land area; if value of land were the measure the share of Hanalei and other Kauai residents would be somewhat higher.

For residential use there were 964 parcels as shown in Table 19. Of this total 78 percent of the parcels were undeveloped in 1971. About 30 percent of the undeveloped parcels are in the Princeville project area and are scheduled to be developed within the next 3 to 5 years. Private residential construction in Hanalei town and in the Wainiha-Haena coastal area has amounted to 10 and 12 homes, respectively over the past 2 years. Within the town of Hanalei, 26 percent of the improved residential lots are undeveloped in addition to the large proportion of undeveloped parcels of agricultural land. This indicates that a substantial amount of population growth can be accommodated on existing parcels not yet developed, but designated for such use.

As of January 14, 1972, there had been 30 sales of land in the Hanalei district during the 1971-72 fiscal year. Only 2 sales of conservation land, 1 of agriculture, and 1 of rural land were recorded. The remaining 26 were designated as urban. The average price per square foot of urban land was $1.46. Without more sales, it is not possible to show accurately the value of other land. For the few sales recorded, the price of conservation land averaged $1.66 per square foot, agricultural land was $.52 per foot, and rural land was $1.51 per foot. Except for the urban land sales, little reliance should be placed on these values as indicators. For the urban sales, the range in prices was from $.78 to $2.50 per square foot.

Property taxation

Residents of the Hanalei area have repeatedly express their concern over the lack of fairness and coordination in property taxation and land use planning. This basic question of equity in the land market is difficult to resolve, for it involves interpersonal differences in value judgments. Nevertheless, a brief discussion of the forces involved and of some alternative solutions may assist in clarifying the issues.

Society, through the market process, places dollar values on land. These values reflect, within limits, the usefulness of the land in question. As land becomes more valuable for residential use than for agri-

Table 19. Residential parcels of land in Hanalei by tax map key and land use.

Tax map key	Improved Residential		Agriculture		Conservation		Total
	With building	Without building	With building	Without building	With building	Without building	
	Number						
Kalihikai-Kalihiwai	19	24	6	25	--	--	74
Hanalei-Princeville	8	221	1	4	--	--	234
Hanalei Town	96	34	3	61	--	--	194
Waioli-Waipa	1	6	4	19	--	--	30
Lumahai	--	--	--	--	--	--	0
Wainiha	30	97	17	138	--	--	282
Haena	--	--	--	--	27	123	150
Total	154	382	31	247	27	123	964

Source: Hawaii State Tax Office, 1971 real property assessment information.

culture, the farmer may decide to capture the financial rewards of converting it to this use. As land values rise, so do property taxes which are levied on an ad valorem (in proportion to value) basis. This increases the annual costs of using the property, thus providing additional incentive to convert it to a higher valued use. At some point, the combination of land of higher land value and increased taxes is likely to lead the landowner to sell his property, or at least convert its use. Generally this process works to the benefit of society, for land on the fringes of residential development is valued higher and thus more frequently converted to residential use than more isolated tracts. This avoids scattered development with underutilized sewers, water lines, and other utilities. In other words, more compact development reduces the costs of constructing, maintaining and using roads, schools, and other public services.

The process is not always so neat, however, nor is it limited only to the fringes between urban and rural areas. A hotel or a service station placed in the midst of rural land will cause surrounding land speculation and expectations of future gains. The landowner is caught in the middle. His property taxes are being used to provide or improve public services he may already consider to be adequate. Indeed, he may

have purchased that particular property because of the low level of population, taxes, and public services. As more services and public facilities are provided, the land values are further increased and property taxes go up to pay for the improved services that are part of the cause for the increasing land values in the first place. Throughout this process, the person paying the taxes may have had little or no increase in income to help ease his increasing tax burden. Seemingly, the only way to emerge a winner is to give up, sell the property, and reap the appreciation in land value. However, for the many farmers and residents with leaseholds, even this solution is not available. In the latter case in particular, the individual sees that society through the market system and its taxing policies has caused gross inequities.

Of course the underlying theory of property taxation is that individuals will contribute to society an amount in proportion to their wealth as evidenced by their control over real property. So as to avoid highly arbitrary methods of valuation and ensuing inequities, the impersonal market place is used as a guide in determining real property values. These basic premises are widely accepted, but the system seems to not function equitably for several reasons.

First is the obvious contradiction that leaseholders are paying for property they do not own. Over time, as property values increase, it is the leasee who pays the increase in property taxes. In other words, the land user often is hurt by increasing land values while the landowner receives the benefits.

Another issue concerns the seeming disregard by tax assessors of County and State land use planning in determining land values. While it could be argued that land zoned for agricultural use, for example, should be assessed on the basis of the capitalized income that can be earned from agricultural use of the land, the fact remains that land has been sold repeatedly throughout the County at prices far above its worth in currently permitted uses. While a portion of such sales can be attributed to ignorance on the part of the purchaser or to a desire for a few wealthy families to secure residential privacy, the market undoubtedly reflects in part the belief of purchasers that variances or zoning changes can be obtained. Thus, pure speculation could be controlled to a degree if there were greater certainty concerning future permitted uses of specific parcels of land. The trick is to maintain the needed flexibility in land use controls, while making permitted changes in land use more predictable. Less willingness to change zoning boundaries and to issue variances coupled with more detailed zoning would be a step in this direction.

A third source of complaints is simply that appraisers have made errors in determining market values of land. Administrative corrections and appeal processes seem to be the only viable solution to this problem, realizing that the concentration of land in Hawaii and the consequent low turnover of property ownership make the land market less readily comprehensible as a determinant of land values than elsewhere in the country. It is realized that the market may occasionally give a false reading due to the ignorance of some buyers. As long as such purchasers are the exception, it is possible for appraisers to ignore such prices, as they are directed to do by law.

A fourth problem is more difficult to fully understand. The basic reason is that some of the effects of private action are felt by people not directly involved in the action. Indeed, this is the most important reason for zoning. For example, if a beautiful open space is filled in with a monstrous development, there is no way the neighboring property owner can legally demand compensation for the destruction of his view. However, he could have purchased, as a property right, the agreement of the open space property owners to not engage in certain uses of the property. Such a legal device has its limits in that numerous individuals might be badly affected by use of the open space area. Persuading each of them to voluntarily contribute their proportionate amount so that the owner of the open space can be financially induced to use the land in a suitable manner is a nearly impossible task. Each person being asked to contribute quickly realizes that he would receive the same degree of benefits without paying, provided everyone else pays. The end result is that very few people would be willing to contribute. An alternative approach is simply to forbid certain activities in specific areas. This is one of the intents of zoning. A second alternative is to permit a landowner to dedicate his land to a certain use for a specific time period, in exchange for which he receives a specified reduction in the amount of property taxes he is required to pay.

The State of Hawaii already permits dedication of land for agricultural use for minimum periods of 10 years, in return for which the property is taxed on the basis of its use rather than its more valuable potential use. Conversion of use prior to the end of the dedication period is permitted provided the State is paid the difference between the tax that would have been paid and that actually paid, plus 5 percent per year. The State has essentially said that people in society who do not own a specific piece of property receive benefits not reflected in the market from agricultural use of the land. They are thus willing to subsidize the agricultural operation, within fairly severe limits, as an inducement to keep the land in agriculture. At the same time, society is not preventing the owner from converting to a higher, more profitable use as would be the case with zoning restrictions.

Since nonagricultural open space and even low density residential development often involve similar non-market benefits to surrounding owners and residents, it would seem logical to permit similar dedication procedures for such uses.

In 1971 the property tax rate was $15.00 per thousand dollars of assessed value. Suppose agricultural land is worth $.50 per square foot in the market and is assessed at 70 percent of market value. The per acre tax would be $229. For a house worth $20,000 on a $15,000 lot, the tax would be $368. Within the study area, 4 parcels of land totaling 101.6 acres have been dedicated to agricultural use for tax assessment purposes. The reduction in assessed value is $61,237, which means a tax reduction of $919 per year. Thus the public is foregoing tax revenues of $9.05 per acre per year in order to encourage retention of that land in agricultural use.

Tourism and Recreation

Most of the land in the Hanalei area that is flowing out of agriculture is going into recreation oriented activities such as Prince-

Hikers and campers are attracted to the rugged beauty of Hanakapiai and Kalalau valleys.

ville at Hanalei. Practically none of this land is cropland, so thus far the decrease in agricultural production and employment for this reason has been negligible. The increased population, even though much of it is highly transient, will result in increased demands for fire and police protection, schools, roads, and access to beaches and inland recreation areas. As these services are improved there is, in turn, greater inducement for further growth in recreation-oriented activities.

Although land values have and will continue to increase dramatically as marginal agricultural land is converted to recreation uses, the problem of low wages associated with agriculture will not be overcome. In other words, although wages might be slightly better in recreation than in farming, they are still likely to be among the lowest in the State's economy. Since more jobs will be available, many of which are considered suitable for women, family incomes are likely to increase due to more jobs being held within each family. This increase in total family income will be lessened in part for non-property owning families, for they will find it increasingly expensive to secure housing in the face of rising property values.

Present and potential tourism

Residents of the Hanalei region are more concerned with controlling the growth of tourism than they are with stimulating its growth. This implied confidence in an increasing demand for tourist activities is substantiated by all major studies that have forecast demand for such activities on Kauai. Despite forecast errors in the past, often exceeding 25 percent, there is general agreement that the annual number of visitors to Kauai will at least double or possibly triple over the decade of the seventies. The visitor industry in Hawaii is undergoing changes that will alter the bases of past expectations. The advent of tour groups (and financing) from Japan represents possibilities that are not yet fully understood. Resort-residential developments such as Princeville are a largely untried concept in Hawaii, although similar efforts are not widespread throughout the State. These changes necessarily could the interpretation of past trends. Nevertheless, the present study does not include any revision of tourism projections for

Kauai because no significant new data are available, and such projections are sound, despite some differences in magnitudes predicted.1/

Difficulties in forecasting tourism levels with any degree of accuracy are compounded when only the Hanalei area is considered. Not only will such levels be affected by the state of the national economy and the changing appeal of Waikiki, but competing hotel construction in other parts of the County likely will be a major determining factor. Furthermore, the success of such ventures in the north shore region will in part be determined by such unpredictable factors as the marketing and management skills of the concerns involved. Nevertheless, a basic review of the present situation presumable fosters better planning and preparation for the tourist oriented activities for future decades.

As of February 1972, there were 2719 hotel units on Kauai. Of these, 113 were at the Hanalei Plantation and 4 at Hanalei Apartments. In addition, Hanalei Colony Resort had approximately 30 units for rental on a hotel basis. Since the latter operation is basically a condominium complex, the number of units available on a hotel basis will vary from time to time. In other words, about 5 percent of the hotel units presently in the County are within the study area.

1/ Readily available sources include: State of Hawaii Department of Planning and Economic Development, Tourism in Hawaii, 1972; Mathematica, The Visitor Industry and Hawaii's Economy, 1970; Economic Research Associates, Hawaii Land Study, 1969; Muroda, Tanaka & Itagaki, Inc., and Eckbo, Dean, Austin & Williams, Kauai General Plan, 1970. Basic data are summarized in Hawaii Visitors Bureau, A Study of Westbound Visitors to the Island of Kauai, Supplement to the 1970 HVB Research Report.

Much of the future resort development in the Hanalei area will not be of the traditional hotel variety. For example, the Hanalei Colony Resort is basically a condominium operation with a portion of the units available on a short-term lease basis. A similar operation is now in initial stages of construction as part of the Princeville project; shares have been sold for 20 cottages to be constructed along the fairway of the first hole of the Ocean Nine portion of the existing golf course. The cottages will be rented and managed from the clubhouse, with each share owner entitled to certain usage rights. Also as part of the Princeville development, construction is anticipated in 1972 of a 36 unit condominium, complete with swimming pool. Also in 1972, approval is being sought for the construction of a tennis-oriented complex containing 62 studio units and 72 condominiums.

This majestic golf course is central to the entire Princeville development.

The amount of long-term employment generated by these non-hotel resort developments is difficult to predict, particularly since details of management and operation likely will evolve subsequent to completion of construction. At present there are about 55 non-construction employees at the Princeville at Hanalei operation. About half of these are residing in the Kilauea area. Even though the housing pressures are modest in comparison with the expected levels associated with major hotels yet to be constructed, Eagle County Development Corporation has found it advantageous to construct eight two-bedroom units and twelve three-bedroom units as future employee housing.

In addition to hotels and condominiums, Princeville will include a number of single family residences including second homes, retirement homes, and some full time residences. The future magnitude and impact of this community is difficult to assess, but also highly intriguing since such an effort has yet to succeed in Hawaii. Thus far about one-third of the 203 houselots presently available have been sold. Twenty percent of those sold have been purchased by Oahu residents, 30 percent by Kauai residents, 43 percent by Mainland residents, and the remainder of the purchasers are from various foreign countries. Although financially encouraged to begin construction, buyers are not compelled in any way to do so. Consequently the specter of land speculation remains, but the existence of the golf course and anticipated resort development are persuasive factors in arguing that construction of second homes will take place on many of the lots within the next decade.

At present, the Hanalei Plantation is the major tourist facility in the north shore region. As it is a part of the Island Holidays chain, the parent company handles reservations and tour arrangements. Slightly less than half the guests of the hotel are booked on a tour basis. The occupancy rate at the Hanalei Plantation recently has corresponded closely to that of the entire industry on Kauai. In addition to the standard tourist hotel services, boat rentals and helicopter service are available. The twenty-seven hole golf course at the Princeville development is also a major attraction for overnight visitors.

Although the majority of tourists on Kauai visit Hanalei for at least a brief view of the valley, there has been little in the past to persuade them to stay overnight. If large numbers of visitors are to do more than simply drive through the area in rented automobiles or as part of a guided tour group, there must be a greater attraction than natural scenic beauty, indispensable as it may be. In a way, this is a chicken-and-egg situation, for it is economically difficult to operate shops, entertainment, and outdoor recreation facilities without large numbers of overnight visitors. On the other hand, there is nothing to attract them to stay overnight without such facilities. In other words, a minimum level of visitors is necessary to support the diversity of activities needed. Industry sources generally refer to 1000 to 1500 units with an occupancy rate of 70 to 85 percent as being of <u>minimum</u> size to support the requisite activities needed to qualify as a "destination area." Informal observation supports this belief in such a minimum size. As long as accommodations number less than this minimum, occupancy rates will remain low and recreation facilities will be economically underutilized.

Table 20. Visitor use levels, Kauai

Year	Rooms	Direct hotel employment	Occupancy rate	Visitors to Kauai	Percent of total to state
1962	596	450	.633		
1963	596	540	.654	104,395	24.3
1964	776	620	.723	148,312	26.3
1965	860	670	.710	186,157	27.1
1966	1115	730	.711	204,687	24.5
1967	1260	850	.794	275,461	26.5
1968	1914	1090	.758	327,813	28.1
1969	1937	1080	.625	363,759	26.5
1970	2628	970	.580	426,030	27.0
1971	2719	1010	.601	472,663	27.8
1972 (Jan.)	2719	N.A.	.478	*31,054	27.4
1972 (Feb.)	2719	N.A.	.724	*47,953	N.A.

Source: Hawaii Visitors Bureau, Visitor Plant Inventory and Annual Research Reports; Department of Labor and Industrial Relations, Office of Research and Statistics, Labor Force Estimates, Kauai 1960-67. Recent data yet unpublished and revisions also obtained from these agency sources.

*West-bound only.

Figures shown in Table 20 indicate the key data concerning the recent growth of the tourist industry on Kauai. As mentioned previously, there is general agreement among forecasters that the annual number of visitors to Kauai will at least double during the decade of the seventies. When appropriately adjusted, these forecasts indicate a demand for an additional 3 to 5 thousand hotel units on Kauai over the next decade. The timing and location of such units will be determined by the initiatives of private industry coupled with the responses of County and State officials. Given the indicated level of demand within the County coupled with plans by present developers, and taking into consideration the areas designated for resort development as part of the County General Plan, it is reasonable to predict for the Hanalei area that the construction of at least 1000 hotel units will take place within the next decade, largely within the Princeville project. A major part of this construction will be on the basis of condominium-resorts, but it is not possible to tell at this time to what extent such units will be equivalent to standard hotel units in terms of tourist traffic and economic impact.

If it is reasonably assumed that 1000 units (or the equivalent combination of hotel units and condominium-resort units) are to be constructed during the next decade, approximately 500 additional workers would be needed for employment directly by the hotels. Additional tourism support services derived from the increase in tourist activity allocated to the Hanalei area would amount to about 250 jobs, but few of these would be located in the Hanalei area. Survey findings indicate that although tourism is the leading souce of employment (30 percent) for residents of the Hanalei area, there are at present no more than 70 jobs in tourism held by residents. Some of these jobs are located outside the Hanalei area, and about one-third are less than fulltime. Approximately another 35 people commute into the Hanalei area for employment in various tourism services.

The anticipated demand for hotel employees and other workers in the visitor industry located in the Hanalei area leads to a crucial problem. Although some employees will prefer to commute from other residential areas such as Kapaa or Lihue, most new employees will prefer to live within the Hanalei area. Expectations that such housing demand of the next decade will be met by individually financed and contracted structures do not appear to be realistic. Fulfillment of these needs could be facilitated by requiring that hotel and resort developers provide a certain amount of employee housing as a condition of being permitted to construct hotel facilities.

Underlying much of the foregoing analysis and prediction of tourism in the Hanalei area is confidential information concerning financial details and plans for operations in the area. Due to the few firms involved, it is not possible to aggregate such data and thus hide the identity of individual enterprises. This problem, when combined with the high degree of uncertainty associated with the expansion of varous facets of the tourist industry, results in admittedly vague and conditional predictions and impact statements. Unfortunately, no other approach seemed feasible.

Vacation homes

The rate of construction of second homes in the Hanalei area is dependent upon many factors:

a) the competition offered by other areas in Hawaii and the western United States,

b) the increases in real family income among upper income groups,

c) the initiative and imagination of developers,

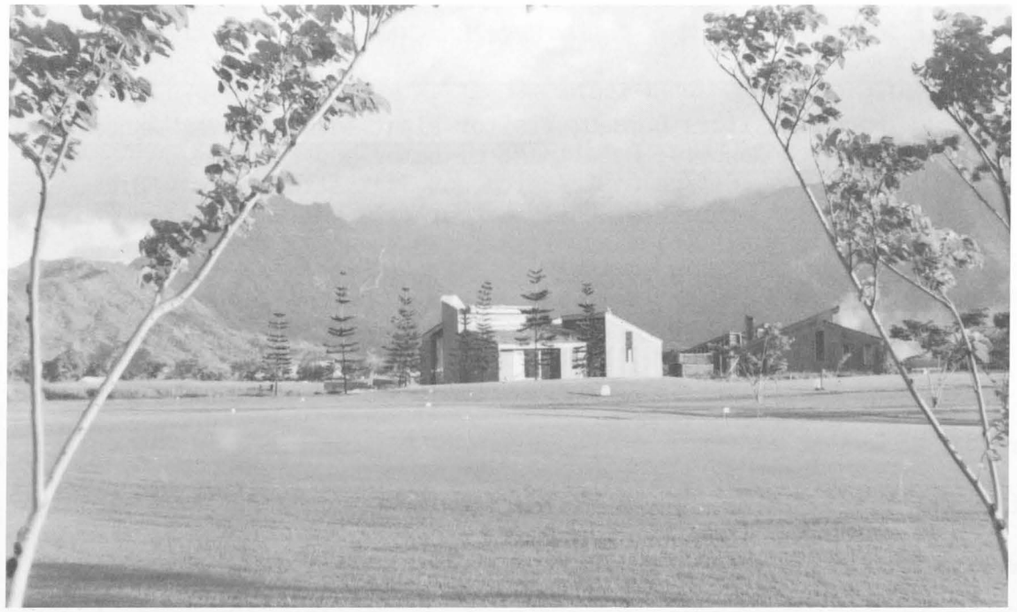
d) the personal preferences of investors in relation to the relative attractions of the region,

e) the growth of population in metropolitan areas, particularly Honolulu,

f) the policy controls followed by the County.

Only the latter variable is within the realm of local control. By plotting income and population increases, it would be possible to estimate the total demand for vacation housing for the nation, but determining the share of this demand for only the Hanalei region would be so clouded by the effects of the other variables that it would be a senseless exercise.

Nevertheless, available data make certain inferences possible. On the basis of land sales thus far completed by the Eagle County Development Corporation and on the basis of recorded ownership of other



Golf cottages nearing completion at the Princeville development.

small parcels of land in the north shore area, it is reasonable to infer that about half the second homes to be constructed in the region will be owned by families residing within the State, but not within the Hanalei region itself. Since the minimum cost for land and building construction at Princeville at Hanalei is $45,000, most second-home owners there will be highly affluent. High levels of affluence are also characteristic of other second-home owners in the area.

By inference, in-state owners of second homes can be expected to use their homes frequently. For example, one study in Minnesota has shown that the average family owning a second home made seventeen 250 to 300 mile round trips per year, with most of the use occurring in the summer months.[1/] These same families spent an annual average of $250 for services by local workers in the community. An additional $210 was spent in the community for household supplies. All of the expenditures for services stay within the community, but only the "price markup" for household supplies remains within the community to generate additional personal income as it is spent again. Since the Minnesota families were much less affluent than second-home owners in Hawaii as inferred by the substantial differences in second-home owners in Hawaii as inferred by the substantial differences in second-home purchase prices, the figures in the Minnesota study may be the minimum averages anticipated in Hawaii.

Mainland owners of second homes in Hawaii constitute a highly select group within second-home owners in the United States. For instance, according to the Census Bureau 80 percent of the second homes in the country are within 200 miles of the owners' primary residence.[2/] The typical second home in the United States is valued at $7800 and thus considered to be a cabin or cottage. Neither of these characteristics applies to the typical Mainland owner of a second home in Hawaii. Because such owners are unusual in terms of the national situation, little is known about them. Nevertheless, national statistics show that people who travel greater distances to their second homes generally spend more for its purchase. This substantiates the previous conclusion that second-home purchasers will be very affluent.

The impact on the Hanalei region of large numbers of second homes is not only in terms of increased expenditures in the area. The County of Kauai will experience an increase in its property-tax base, but it must also fund increased services in police and fire protection as well as experiencing greater demands for road construction and maintenance. (Road and sewer construction in the Princeville development will be paid for by the developer, not local government). This will be true not only because of increased population, but because most new part-time residents will be accustomed to high levels of services typical to most urban areas. They may thus expect comparable services in what is essentially a rural area.

In addition to property tax revenues, the County receives additional funds from the State that are allocated in part on the basis of population. Since owners of second homes will seldom be included in

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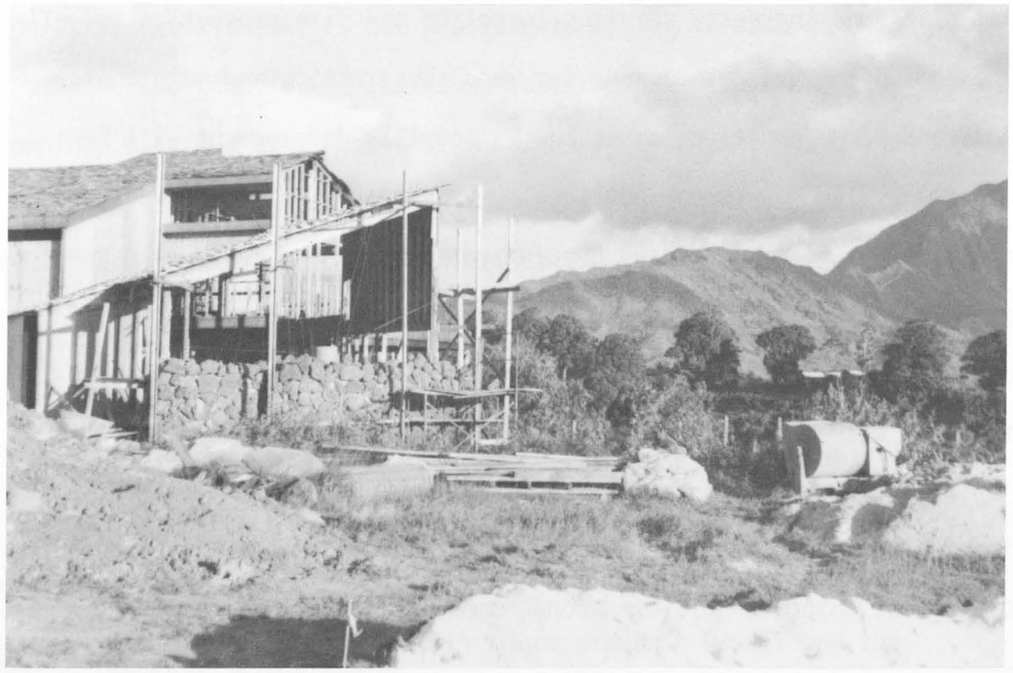
1/ Robert W. Snyder, "Seasonal Homes Benefit Rural Minnesota," Minnesota Science, p. 19.

2/ Bureau of the Census, Second Homes in the United States, Current Housing Reports Series H-121 No. 16, U.S. Department of Commerce.

this population, the County is faced with providing services for people who are not fully reflected in the process of allocating funds to the County. (The benefits to education through increases in the local property tax base but without additional demands for services as is true elsewhere in the country, is not the case in Hawaii, since the State administers the public schools).

Construction

Future building construction in the Hanalei area likely will consist of 3 major types: (1) second homes, (2) employee housing, (3) resort-hotel complexes. Construction of the latter 2 types will most certainly require that skilled labor be imported from outside the County. At the time of the study, no skilled crews for large projects using modern techniques were available on Kauai. Construction of second homes, if pursued on a sizeable scale would also require importation of construction labor.



High-cost housing for relatively affluent residents and vacationers is now in the initial stages of construction.

Economic impact of such construction is difficult to predict for several reasons. The precise kind of future construction is not known. If construction is carried out by small developers and contractors, local building supply firms are likely to get a larger share of the materials business than would be the case with larger contracts which induce "outside" bids. The Princeville development is a major force in future construction, but since little construction has yet taken place, there are no historical data to serve as a basis for making projections.

A limited estimate of economic impact within the County for a hypothetical figure of 100 second homes with an average value of $50,000 constructed by at least several contractors can be inferred from data generated elsewhere. Home construction and site preparation typically account for slightly less than 70 percent of the cost of a home in Hawaii, the remainder going for developer profits, architect fees, overhead, and financing.[1/] The impact of the latter categories depends solely upon the location of the recipients of those fees. On the other hand, it is quite likely that a major portion of construction and site preparation fees will be respent within the community.

1/ Planning for Oahu, Planning Department, City and County of Honolulu, December, 1971, p. 7.

Eagle County Development Corporation offers this housing on favorable terms to some of its employees.

Other studies have shown materials and labor costs to be about equal in the total costs of home construction.[1/] For our hypothetical example of a total of 5 million dollars in value, this means that labor expenditures would be $1,750,000 which would be equalled by expenditures on materials.

Accurate figures for the average annual compensation in the construction industry are not available, but a figure between $7000 and $8000 appears accurate from available sources. This means a total of 22 to 25 jobs in our example, if the work were spread evenly over a decade. Measurements of the average propensity to consume locally as derived in a similar situation in California suggest that about 60 percent of the total received by labor would be respent within the County.[2/]

1/ Tuolumne County, Case Study, Ronald Drake, et. al., University of California, Berkeley, August 1968, pp. 35-38.

2/ Ibid.

Markup by local building supply houses on construction materials varies considerably according to the type of purchaser and the materials involved. There is no overall figure available from the building industry, consequently no economic impact statement is possible.

The economic impact of construction activities for employee housing and resort complexes will be a smaller proportion of total expenditures due to less of the money being spent within the County and also because workers on such projects will tend to spend less time in the community.

Projected Changes in Service Structure

As noted previously, most new jobs in the Hanalei region over the next decade will be created by growth in the tourism and recreation industry. New jobs are not likely in agriculture, and construction employment will be short-lived. Assuming such growth in tourism, induced growth in retail and service industries will occur. Ratios of secondary employment to primary employment (agriculture, tourism, and construction) were found to be 1.08 in 1968 for the entire County.[1/] For a smaller area within the County such as the Hanalei region, the ratio is likely to be on the order of .2, although this ratio would increase as growth occurs. This ratio means that if 500 new jobs are created by tourism expansion in the Hanalei area, then approximately 100 jobs would be induced within the area and another 400 would be

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1/ Kauai General Plan, Appendix I, Muroda, Tanaka & Itagaki, Inc., and Eckbo, Dean, Austin & Williams, March, 1970, pp. 54-61

induced in the remainder of the County. This would not include jobs derived from local expenditures in construction through the interim.

Estimates of activity in non-basic sectors (other than tourism and agriculture) can be derived from several studies in geography and sociology which have investigated the minimum population in a trade area that is necessary to support a particular business activity.[2/] The minimum population necessary to support an enterprise will vary somewhat, depending upon the income, dispersion, and preferences of the population in question. The number must be higher to justify starting a business than it would be for maintaining an on-going activity for which a large part of the costs are already sunk and often fully depreciated. Since it is anticipated that the population of the Hanalei region will grow over the next decade, only threshold figures (minimum population necessary to start a new enterprise) will be discussed in this section. Another difficulty in utilizing the estimates to be given here is the variation in ability of different businessmen. There is no guarantee of business success just because the required population is available.

Table 21 shows the present commercial services offered to residents of the Hanalei region in comparison with the estimated range of services possible with higher levels of population. The services offered in the resort-hotel complexes discussed earlier are not considered as part of the services discussed here, since patronage of these facilities will not generally come from the resident populace.

Filling stations and food stores have estimated thresholds of 600 population in the trade area. In other words, a filling station would likely be economically viable in Hanalei at the present time, whereas a larger food store with consequent increased volume would be more viable than the present two general stores. Approximately 1500 population would be necessary to justify economically a second food store and a second filling station. The third threshold level would be at about 3000 population.

A restaurant and tavern have threshold levels of approximately 600 and 800, respectively. These figures are adjusted downward slightly to allow for anticipated tourist patronage at low levels, on the assumption

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2/ "Functional Bases of the Central Place Hierarchy," Brian J.L. Berry and William L. Garrison, Economic Georgraphy, Vol. 34 (April, 1958), pp. 145-154, and "Changes in the Service Structure of Rural Trade Centers," Stanley David Brunn, Rural Sociology, Vol. 33 (June, 1968), pp. 200-206.

Heavy rainfall has been a major constraint in planning the future of the Hanalei area.

Table 21. Commercial Services Possibilities - Hanalei, Kauai

March 1972	2000 people	5000 people
General store (2)	Food store (2)	Food store (3)
Tavern	Tavern	Tavern (2)
Restaurant	Restaurant	Restaurant (2)
Liquor store	Liquor store (2)	Liquor store (3)
Branch bank	Bank	Bank
Health food store	Real estate broker	Real estate broker (2)
Laundromat	Filling station (2)	Filling station (3)
Building contractor	Laundromat	Laundromat (2)
	Building contractor (2)	Building contractor (2)
	Drugstore	Drugstore (2)
	Auto repair shop	Auto repair shop (2)
	Beauty shop	Beauty shop (2)
	Hardware store	Hardware store
	Appliance dealer	Auto dealer
	Construction materials	Appliance dealer
	Lawyer	Construction materials
	Furniture store	Lawyer (2)
	Family apparel	Meat market
	Medical doctor	Furniture store
	Variety store	Family apparel
	Dry cleaning shop	Medical doctor (2)
	Bakery	Variety store
	Shoe store	Dry cleaning shop (2)
	Undertaker	Bakery
		Shoe store
		Undertaker
		Barber shop
		Dentist
		Jewelry store
		Men's clothing
		Women's apparel
		Camera and photo supply

that most tourists will patronize facilities associated with hotel complexes. The service and volume structure of both taverns and restaurants suggest that the second threshold level would be approximately 2500 people. This is in part due to anticipated growing competition of similar services by resort complexes.

Due to price setting by the State, and also due to business derived from tourists, liquor stores have a threshold level much lower than is typical elsewhere in the country. The estimates are thus quite imprecise, but approximate levels are shown in Table 21. The adaptability of banking services permits one enterprise to serve the present needs as well as expanding to serve the needs of a population greater than 5000. Insufficient information is available to estimate population levels associated with such specialty shops as the present health foods store in Hanalei. The apparent success of the present laundromat in Hanalei can be attributed to the unusual characteristics of the population. Such a venture would not likely be successful in a more typical community of similar size. The unusual anticipations of the future of the community account for the existence of a real estate business in the area. Population size is not a good indicator of the viability of such an activity.

At present the trade area for the Hanalei area is largely coincident with the boundaries laid out for this entire study. As the commercial services increase in quantity and quality, the boundaries will expand to include portions of the population in the Kilauea community. This expansion would be greatly accelerated by locating business activity at some point between the two towns of Hanalei and Kilauea. Although Kilauea was not formally a part of this study, proposed feedlot, slaughterhouse and dairy operations there would seem to indicate modest increases in the population of the area. Depending upon the nature of public and employee housing programs developed for anticipated hotel and resort workers at Princeville, an undetermined proportion of such workers will reside in Kilauea.

Social services

As the community grows and new residents arrive with urban backgrounds, demands for public services will also increase. The feasibility of providing such services is dependent in part upon the size of the population in the area to be served. Prior to describing such possibilities, it is useful to describe the present state of such endeavors as they relate to residents of the Hanalei area.

Access to social services in the Hanalei community has been limited in comparison with more urbanized areas in the State. One of the most frequently mentioned deficiencies in the community was access to health care. In conjunction with the overall study, a sample survey of 60 households was administered to determine in greater detail the health facilities needed. At the time of the study, there was no doctor practicing in the Hanalei area. The closest facilities were either in Lihue or a clinic in Kilauea. In addition, the State Department of Health operates a combined well-baby clinic and a walk-in clinic for minor illnesses on a once per month basis. Fifty-two percent and 68 percent, respectively, of the sample of households were unaware that these services were offered. Twenty-three percent of the sample were unaware that an annual diabetes screening test was available in the community.

As anticipated, nearly all respondents agreed there was a need for a health clinic, mobile clinic, or emergency health care facility in the community. Underlying this need was the fact that 29 percent of the households in the previous year had members who experienced an accident or illness for which help was needed quickly. Eventual health care improvement will occur as the population increases so that a full-time physician could be supported. Alternatively, the community might be so fortunate as to secure the services of a doctor who would be willing to take a substantial decrease in the income he could receive by practicing elsewhere. Of the 84 percent of the respondents who indicated they would be willing to go to a doctor in Hanalei, 60 percent stated they would be willing to pay as much as $5.00 per visit extra in order to avoid travelling to Lihue. A further possible improvement in health care in the community might be derived from the fact that 60% of the respondents indicated they would attend a free health education class if it were offered in the community.

Despite the isolation of Hanalei residents from State offices in Lihue and the lack of publicity concerning both welfare eligibility criteria and the nature of services available, a substantial part of the population was receiving welfare benefits at the time of this study. As shown in Table 22, approximately one-tenth of the population was being assisted in some way by basic welfare programs. An additional 162 persons were receiving Food Stamps, but no other assistance. Because of the low level of individual assistance offered under the Food Stamp Program and due to the essential differences in legislative intent concerning this program as compared to others, purchasers of Food Stamps are considered apart from recipients of assistance under other programs.

In addition to benefits from the programs shown in Table 22, full medical coverage and Food Stamp eligibility are provided, excepting for recipients of assistance under the Services category. Basic assist-

Table 22. Hanalei welfare profile, December 1971

Program Category	Cases	Persons
OAA (old age assistance)	6	6
AD (aid to the disabled)	2	2
AFDC (aid to families with dependent children)	13	34
AFDC-UP (aid to families with dependent children-unemployed parent)	4	12
GA (general assistance)	2	3
MA (medical assistance to the aged)	3	3
MG (medical assistance to GA)	2	2
SER (services, including child welfare services)	5	15
Total	37	77
FSO (food stamps only)	125	162

Table 23. Ages of welfare recipients

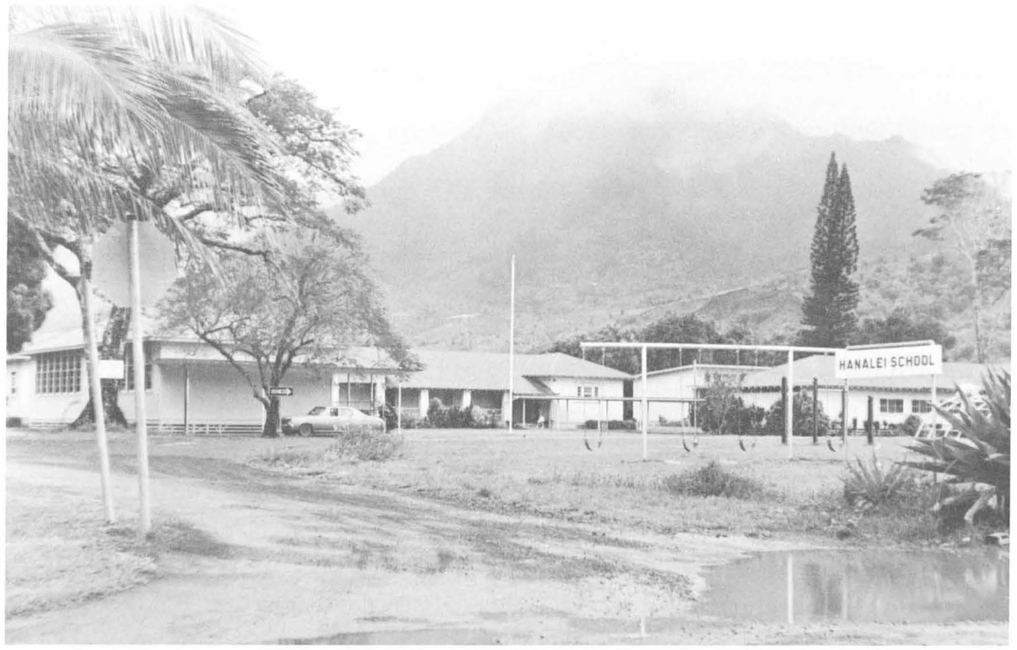
Age	OAA, AD	AFDC, AFDC-UP	GA	MA, MG	SER	Totals
0 - 6	--	19	--	--	2	21
7 -20	--	7	--	1	7	15
21-35	2	17	2	1	3	25
36-60	--	3	--	--	3	6
61 plus	6	--	1	3	--	10
Totals	8	46	3	5	15	77

ance varies among programs due to variations in income eligibility criteria. However, Hawaii essentially provides a maximum of $132.00 per month for each adult and about $41.00 per month for each child.

As shown in Table 23, nearly half the recipients of assistance, not including those receiving Food Stamps only, are age 20 and below. The ethnic backgrounds of the 77 people described in Tables 22 and 23 are as follows: White-57; Hawaiian-Part Hawaiian-8; Filipino-7; Puerto Rican-2; Unknown-3. Welfare records indicated that 32 of the 162 people receiving Food Stamps without other assistance were considered "residents" of the Hanalei area. The balance of 130 were considered to be "transients."

The extent of welfare assistance in the study area can be analyzed further by comparing it with the total welfare population of Kauai. Since the population in the area studied is slightly greater than 2 percent of the population of Kauai County, it might be expected that the number of cases in the Hanalei community would approximate 2 percent of the cases in the County. As shown in Table 24, this is largely true of the basic welfare programs, but the number of people receiving only Food Stamps greatly exceeds that suggested by the general population levels.

The Hanalei School had 83 children enrolled in kindergarten through sixth grade as of January, 1972. Since the school has one of the highest teacher-student ratios in the state, and because of other inefficiencies associated with the small enrollment level, the Department of Education has planned for some time to eventually consolidate the Hanalei and Kilauea school.



Plans are underway to construct a new school facility to serve both the Hanalei and Kilauea communities.

Table 24. Welfare levels in Kauai compared to North Shore region - December 1971

Welfare categories	Cases in Kauai	Cases North Shore	Percent in North Shore
Payment (OAA, AD, AFDC, AFDC-UP, GA)	796	27	3.4
Medical (MA, MG, etc.)	264	5	1.9
Services only	76	5	6.6
Food Stamps only	629	125	19.8

The idea of consolidation of efforts and facilities would also seem reasonable for other social service activities. For example, an information and referral service could be established in the community to further the availability and use of health programs, programs for the aged, welfare programs, certain Department of Education activities, and the various offerings of the Office of Economic Opportunity. Alternatively, physical facilities could be shared on a scheduled basis for outreach efforts of these same agencies. At present, personnel involved in these programs candidly admit that the isolation of the community is preventing residents from receiving benefits equal to those received in much of the rest of Kauai County.

Most medical, educational, and welfare services are thus available in Lihue or Kapaa, requiring a drive of 45 minutes to an hour. Other County offices and facilities are similarly located. Besides the elementary school, the only services readily available in the Hanalei community are the post office, fire station, and court house. The water and highway systems are also maintained from facilities in the community.

Table 25 shows the present public services offered from within the community in comparison with the possibilities associated with larger population levels. It is not possible to establish thresholds of population necessary to justify public service facilities. Such decisions are typically based upon political considerations rather than any market determination of need. While population size is correlated with the frequency of such facilities, more important considerations involve the effectiveness of local organizations in pressing for the establishment of public services.[1/]

1/ "Community Size, Population Composition, and Cultural Activity in Smaller Communities," Irving L. Allen, Rural Sociology, Vol. 33 (September, 1968), pp. 328-338.

Table 25. Public and Semi-Public Services Possibilities
Hanalei, Kauai

Present	2000 People	5000 People
Elementary School	Elementary School	Elementary School (2)
Post Office	Intermediate School	Intermediate School
Fire Station	Post Office	Post Office
Court House	Fire Station	Fire Station
Water System	Court House	Court House
Garbage Collection	Water System	Hospital
Museum	Garbage Collection	Water System
Waioli Mission	Medical Clinic	Lifeguard
	Lifeguard	Garbage Collection
	Sewer System	Sewer System
	Police Substation	Police Substation
	Public Welfare Case Worker	Probation Office
	Museum	Extension Agent
	Waioli Mission	Public Welfare Case Worker
		"Little" Theatre
		Art Gallery or Exhibits
		Public Library
		Community Center
		Museum
		Waioli Mission

Summary of the economy--present and future

Forecasts of employment and population levels for small areas are necessarily conditional statements. Simple time-series projections have little validity in a situation in which the major determining variables are in a high state of flux. The state of the art in economic forecasting is such that only fair reliability has been shown for forecasts of one or two years. To attempt to forecast in detail the economy of the Hanalei area over the next decade thus borders on being "social science fiction." Nevertheless, such forecasts are deemed necessary for purposes of planning. Thus, as the following assumptions and forecasts prove wrong over the next decade, adjustments should be made to the overall forecasts.

The following assumptions appear reasonable and are not contradicted by the foregoing findings and analysis:

1. In the absence of better information, economic growth in the community will be evenly distributed over the next ten years.

2. The number of people residing in non-permanent structures in the community will continue to seasonally fluctuate between 100 and 300.

3. A total of fifty retirement homes unrelated to resort development will be built in the next ten years. (Examination of building permits and other relevant data does not provide sufficient data for valid projections.)

4. As is generally the case at present, employees in the Hanalei economic sectors of government, agriculture, and miscellaneous category of "other" will reside in the community. Alternatively, employees in these sectors who commute into the area will be counterbalanced by those working in equivalent sectors outside the community, but reside in the Hanalei area.

5. As has generally been the case elsewhere in similar situations, most construction workers for resort development and most private residences will not come from within the community, nor will they find it advantageous to move there. Construction wages will thus have little impact within the community.

6. Due to the small population at present, and since there is not widespread unemployment, newly-created jobs will be filled by people coming from outside the community.

7. Three-fourths of the employees in the tourism sector who fill new jobs will move into the community. The remainder will commute from Kilauea, Kapaa, and Lihue.

8. New jobs will be allocated on the basis of 1.5 per household in contrast to the present 1.2 per household. Such households will contain, on the average, 3.5 people in contrast to the present 3.3.

The findings and analysis of this study combined with the foregoing assumptions lead to the following forecasts:

1. There will be no increase in agricultural employment over the next decade in the Hanalei area. Long-run forecasts suggest significant decreases for this type of employment in the Hanalei community.

2. The majority of the youth raised in Hanalei will continue to leave in order to pursue training and employment opportunities.

3. Demand for second-homes largely will be in terms of condominiums rather than single-family residences. (Renting and maintenance are less bothersome and also less expensive for condominiums as compared to single-family residences.)

4. Employment in the tourism-resort sector will increase by approximately 500 jobs during the next ten years. (This forecast dominates the nature of the forecasts which follow. Unfortunately, it is the weakest in terms of scientific validity. The number of jobs would result from the construction of 1000 new units in the traditional hotel resort manner, or of some combination of such units with equivalent construction of condominium-resort units. To a large extent, the exact timing and nature of such construction is dependent upon County government, as well as initiatives by the resort industry.)

5. Forecasts of employment levels by sector are shown in Figures 5 and 6.

6. The population increase attributed to new jobs will be a total of 1100.

7. Addition of 200 to 400 people derived from Assumptions #2 and #3, plus the increase from Forecast #6, plus the present population yields a figure of 1900 to 2100 people residing full-time in the Hanalei area in the year 1982.

8. The range of social and commercial services associated with a population of 2000 people as shown in Tables 21 and 25 are thus likely by 1982.

SUMMARY

The diversity of interests among the residents of Hanalei provides a basis for potential conflict concerning future developments

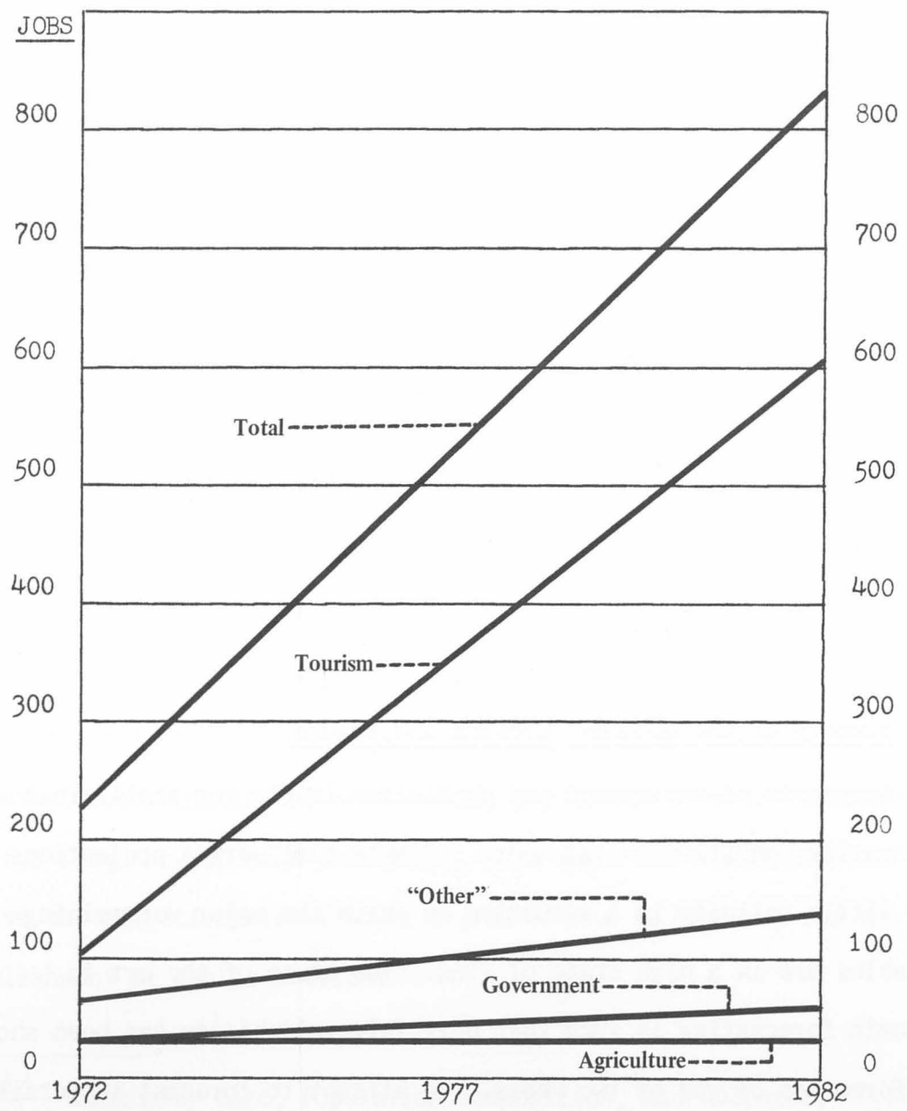


Figure 5. Full-time jobs in Hanalei.

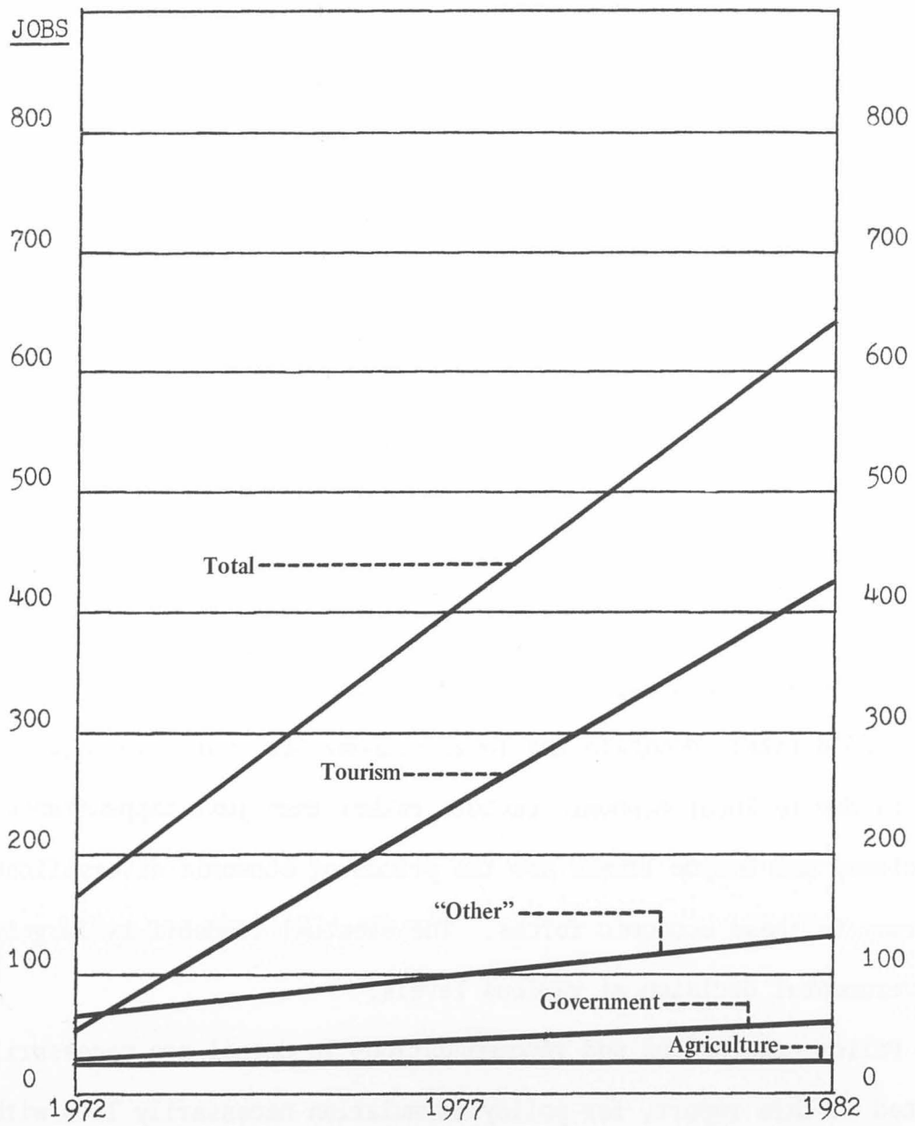


Figure 6. Full-time employees residing and working in the Hanalei area.

within the community. On the other hand, the residents are united in their general appreciation of the community as a place to live. There is little desire to transform the area into a bustling, industrialized metropolis. The compatibility of the major goals concerning the preservation of both agriculture and natural scenic beauty form a solid basis for active cooperation of the residents in planning for the future of the community. Resort development is seen as a threat to the major goals, but if kept within limits, it is seen as providing needed jobs and consequent population growth in the area.

Beach access and park development are the major public expenditures necessary to achieve the predominant goal of the citizenry. Limiting major resort development to the present Project District at Princeville would ease the concern for conflict between this type of activity and the goals of preservation of both agricultural and natural scenic beauty. Other public expenditures which should receive further serious consideration following detailed feasibility studies are: (1) restoration of the pier at Hanalei Bay; (2) construction of a marina or small boat harbor near the mouth of Hanalei River; (3) relocation of school, fire, and road maintenance facilities midway between Kilauea and Hanalei Town.

The economic factors and the potential powers of community planning suggest that the desires of residents can be fulfilled, in general, over the next decade. However, several major issues not previously emphasized will attain major importance as such developments occur. For instance, location of public facilities near the present Princeville project, midway between Hanalei and Kilauea, would stimu-

late the location of commercial facilities in the same location. The increased trade area would permit larger economies of size and scale with consequent increased efficiency, and the two areas would tend to merge into one community. However, such competition would hurt present and planned commercial facilities in Hanalei Town. It would also mean increased travel costs for individuals in the community. Such changes are of sufficient importance that the community should be directly involved in the decisions associated with the changes.

Another emerging issue concerns housing, for the prices of housing will continue to be a major burden for low-income employees in tourism and agriculture. Housing subsidies or income supplements will be necessary to solve this problem. While this will most likely come from some government source, it would be possible for the private sector to establish such programs, particularly if encouragement is forthcoming from the County. Indeed, such activities in the private sector seem to be emerging in the Hanalei area, particularly in the tourism sector. In contrast, similar efforts on the part of agricultural operations seem to be contracting.

Social services in terms of day-care for children of working mothers, assistance for the aged, youth counseling, etc., will be needed increasingly in the community. A multi-agency team approach would provide for the sharing of facilities and perhaps even personnel.

The anticipated decline of agriculture in Hanalei is largely in terms of taro farming. Policy alternatives are detailed in Appendix B. The major possibility for growth in agriculture is in some type of aquaculture. The uncertainties of emerging technology prevent predictions of such eventualities. On the other hand, if the scope of the community is expanded to include Kilauea, the future of agriculture in the area brightens. The feed and cattle activities projected at Kilauea seem likely possibilities over the next five years.

Housing for low income families is an increasing problem as more people move into the Hanalei area.

A varied economy is desirable in terms of cushioning shock from declines in any one sector. As presently foreseen, tourism and recreation would likely dominate the local economy ten years from now. This is due to local economic factors rather than just happenstance. Efficiency and income losses are the prices of economic diversification contrary to these economic forces. The eventual tradeoff is largely a governmental decision at various levels.

Policy conclusions and recommendations in detail are necessarily limited in this report, for policy formulation necessarily lies with the citizen panel in Hanalei and the final consideration by County

officials of their recommendations. This process is continuing follow-preparation of this report. Indeed, this report is seen as an integral basis for the formulation of detailed policy. Two further documents will be prepared as policy formulation proceeds. One will focus on the nature and workings of the citizen panel; the other will be the actual detailed plan of the proposed special treatment zone. Any speculation concerning the conclusions of these reports would be premature in the present report.

Experience has shown that widespread citizen participation in community planning and development is essential. If ordinary people do not attend meetings or resist planning, a development effort will fail in the long run. A failure to speak up, a sense of hopelessness, and apathy on the part of the citizenry can be overcome only to a limited extent by the efforts of outside planning consultants and government officials. Most individuals are so imbedded in the structure of their community that any change is likely to cause resistance and conflict. Successful change thus requires education and acceptance of a new community structure that will be of benefit to the citizenry. If the communication involved in this educational process causes embarrassment and attacks the self-worth of the individual, the result will be non-cooperation, resistance, and determined counter-attacks. The point is that a major part of the responsibility for the success of the planning effort lies with the ordinary people living in the Hanalei area, provided the necessary work is done by the consultants and planning officials.

Since predictions are necessarily imprecise and because the values and goals of people are subject to change, it will be necessary to establish some type of process to update and revise the detailed plan of the proposed special treatment of the Hanalei area. A body of citizens from the community similar to or derived from the present citizens' panel would play an integral role in the updating and revision of the results of the present planning effort.

APPENDIX A

SURVEY PROCEDURES

Design of the Survey

The design of the survey provided for an examination of the effects of the various characteristics of the population studied on appraisals of community change and assessment of needs. This, of necessity, provided for accumulation of demographic data along with those that could be used to determine levels of attitudes held toward change. Such data were used to categorize the population as bases for examining appraisals of change and assessment of community needs and their respective priorities.

Data were gathered through the use of a schedule composed of four parts, namely, (1) demographic information, (2) responses to statements that served as bases for the construction of a scale used to measure attitudes held toward change, (3) appraisals of change in the quality of life in the Hanalei community, and (4) assessment of community needs and the priority assigned each. Two facets of the schedule are of particular interest. The first facet concerns the scale, and the second facet the procedure used to assess community needs and determine priorities.

The scale used to determine levels of receptivity toward change was based on degrees of agreement or disagreement with five statements. Possible scores ranged from a low of 5 to a high of 25. To determine degree of agreement, each respondent was asked to indicate 1 of 5 choices to each statement, namely, strongly agree, agree, not sure, disagree, or strongly disagree. The statements to which each respondent was asked to react were as follows:

1. "With the way the world is today, things for the average man are getting worse, not better." (Agreement indicates lack of receptivity to change.)
2. "There is no point in trying to plan the future of an entire community." (Agreement indicates lack of receptivity to change.)
3. "People in government (elected or appointed) are concerned about the interests of most people and will pay attention to what they say." (Agreement indicates receptivity to change.)
4. "The world is changing so fast anymore, it's hard to figure out how to plan for the future." (Agreement indicates lack of receptivity to change.)
5. "No matter what some people say, you can count (depend) on others just as much today as you ever could." (Agreement indicates receptivity to change.)

Scores for each respondent were determined by summing the value assigned the degree of receptivity to change indicated by agreement with the respective statements. Since the median score was 14.67 for the population studies, all respondents with scores of 15 and more were categorized as oriented toward change, while those with scores of less than 15 were categorized as against change. Of the 309 respondents, 52 percent were in the for change sub-group. Superficially, people described as receptive to change look forward to it while others are more likely to resist and resent change. However, perhaps a more adequate explanation of the grouping is that those who scored high evidenced confidence in their capability to either influence or benefit from anticipated changes in their society, whereas those

scoring low felt they had little influence on such changes or that such changes would be harmful to them.

The total scores for respondents, based on degree of agreement with each of the five statements, were used to determine the reliability of the so-called change scale through the use of the split-half method followed by the application of the Spearman-Brown Prophecy formula. Use of the split-half technique showed a correlation coefficient of 0.609; use of the Spearman-Brown Prophecy formula resulted in a reliability coefficient of 0.754. While this level may not be viewed as particularly high, it served effectively in the identification of interests and preferences of the respondents. The validity of the scale concerned with attitudes held toward change is indicated by the differences between proportions of respondents in the respective sub-groups that were statistically significant, namely, by age, years of schooling, short term residency, and ethnicity.

With respect to assessment of community needs, respondents were provided with ten needs that had been identified prior to the survey, and presented as seven groups of three from which to indicate the first, second, and third choice of each group. Three of the needs appeared in the groups three times, five appeared twice, and two only once. Irrespective of the number of times the ten needs appeared, each could be designated as a first, second or third choice in each of the groups where the respective need appeared. By assigning values of 3 for a first choice, 2 for a second, and 1 for a third, multiplying each by the number of respondents in each instance, totaling the scores, and dividing the total score for each need by the number of times the need appeared, it was possible to determine the rank order of choice. Spearman rank order correlation coefficients were computed along with critical ratios as bases for determining levels of statistical significance in the differences in rankings among various sub-groups.

Basic to the assessment of needs were respondents' appraisals of changes that had occurred during the past 2 years, and changes had occurred. Some, as data will show, were viewed favorably, others unfavorably. In some instances, respondents failed to perceive the occurrence of changes or had no opinion, presumably because of a lack of experience in the community. This suggests the effects of demographic influences that are associated with age, schooling, income, and tenure of residence. Each is a factor that may be expected to condition responses, particularly those concerned with residential environment.

Respondent Groups

The schedule sought information for a variety of purposes. Demographic data were used as independent and test variables, and appraisals of changes and assessments of needs as dependent variables. The latter were analyzed by distributions of the respective sub-groups of the independent variable. Thus, the median years of schooling (11.4) and annual income ($9035) served as bases for some sub-groups, while the common acceptance of 30 years of age as the point in life dividing youthfulness and maturity served as bases for the formation of sub-groups by age.

Sub-groups according to residency were determined by two factors, namely, those who had lived in the community a relatively short period of time and those who had lived there an entire lifetime. With respect to short term residency, 3 years was selected, rather than the median of 16.2 years for the entire population because of the influx of new residents during the past 3 years. It was appropriate to assume that these people, and all others who had lived less than an entire lifetime in the Hanalei area, would view the community and its needs differently. Sub-groups by residency then included (1) all who had lived in the community 3 years or less, and those who had lived there more than 3 years, and (2) those with life-time residencies and those with residencies of less than a lifetime.

The survey gave attention to the characteristics of the population and attitudes held toward needs of the community according to the ethnic backgrounds of the respondents. Those other than of Japanese and Haole ancestry were categorized as "other" to avoid fragmenting the data because of the small number of individuals who were of Chinese, Filipino, Portuguese-Hawaiian, Chinese-Hawaiian, and other ethnic backgrounds. Thus, three ethnic sub-groups were formed for analytical purposes, namely, Japanese, Haole, and "other."

Respondents also were grouped according to their attitudes held towards change as indicated by scores on responses to statements used to form a scale designed to measure such attitudes. Such distributions were particularly useful when analyzed in relation to demographic variables, thereby providing additional information on attitudes held by respondents toward changes occurring in the community and its needs.

The Survey

All households between the Kalihiwai stream and the Na Pali Coast and from the seashore to the mountains were included in the survey. The population studied included heads of households and their spouses and other members of the household 25 years of age or older, thereby eliminating others who were students and whose opinions would be sought in another phase of the overall investigation concerning attitudes held towards changes and needs of Hanalei. A week before the survey was initiated, householders were informed by letter of plans for the survey and its purpose. With only a few exceptions, calls on residents of households were made by teams of 2 to interview members of the respective households separately to assure independence of responses. The survey was conducted during the first 2 weeks in January of 1972. Of the total of 196 residences in the study are, 309 respondents from 178 residences were interviewed.

Analyses of Data

To assure maximum usefulness of data, information gathered was coded, transferred to computer cards and processed through the use of data processing equipment. Distributions were determined, both with respect to frequencies and percentages, for the total population and for the respective sub-groups. Levels of significance of differences between the respective distributions or proportions of responses, as indicated in the discussion of findings, were computed. Differences throughout the analyses of data were accepted as statistically significant at the .05 level.

APPENDIX B

TARO PRODUCTION IN HANALEI

Taro is a root crop grown in paddies submerged in water or on dryland farms. The Hanalei Valley of Kauai is noted for the lush beauty of taro fields stretching along both sides of the river.[1/] Taro is one of the oldest cultivated crops and was noted in China over 2000 years ago and in Egypt about the same time. It is a traditional food crop in the Pacific Islands and Southeast Asia and still grown in these regions in varying amounts. Taro was a staple food of the Hawaiians. It was usually pounded into poi, but was also used in puddings or as a cooked vegetable.

The decline in consumption of taro in recent years can be attributed to the ready availability and convenience of many other food products which were not available to early Hawaiians. These products at competitive prices offer a variety of tastes and textures to satisfy appetites that once would have involved larger quantities of taro. The changing ethnic mix of Hawaii is probably also a factor in declining consumption.

In all of the areas of the world where taro is grown, it is used as a local food product and little, if any, is exported. Hawaii does ship some poi to the Mainland but the quantity is declining and is now only half of what was exported 10 years ago.

Growing wetland taro is a laborious task requiring many hours of hard labor in knee-deep water. Only limited mechanization has been developed. Taro plants do not produce a seed which can be planted. Instead, a part of the plant called the huli must be taken before harvesting and replanted to begin another crop. In harvesting, the taro root must be taken from the ground, separated from the plant, and cleaned before bagging--all by hand.

Virtually all of the taro in Hawaii is wetland taro although it has been grown using dryland or "upland" technology which still offers some potential. Much of the current research effort to find mechanical means of production is aimed at dryland taro even though this would cause a significant change in the structure and organization of the industry. Growers and processors on Kauai assert that dryland taro produces poi that smells "different" and is unacceptable. Whether this resistance can be overcome is not clear, but other countries do raise some dryland taro and presumably it is palatable. Mixing dryland and wetland taro together in poi making could alleviate this problem.

Taro in Hanalei

In the Hanalei area, most of the taro is grown in the Hanalei Valley along the river. Taro is also grown in Waipa and the Wainiha Valley, but on less acreage than in the Hanalei Valley. Acreage figures for taro are only approximations because it takes longer than 1 year

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1/ While this report was prepared for the specific purpose of evaluating the economic potential of taro production in Hanalei, most of the analysis is directly applicable to the entire taro industry in Hawaii.

for a crop to be grown and harvested. Furthermore, even growers give conflicting estimates on how much is planted, how much was harvested, or what the total acreage is.

According to the State Crop and Livestock Reporting Service there are 41 taro growers in Hanalei with about 150 acres of taro.[2/] This is 36 percent of the total acreage in the state and 88 percent of taro land on Kauai. Statewide acreage in 1970 was 420 acres, down 14 percent from 1961. On Kauai there has been a reduction of 23 percent over the same time period. The dollar value of state production in 1970 was $736,000 while the value of production on Kauai was $397,000--about 54 percent of the state total. Higher yields on Kauai account for its larger share of dollar value than its share of acreage in state totals.

At the farm, taro is sold by the bag, which, after shrinkage from water loss, weighs about 100 pounds. The exact yield in pounds can only be approximated since it is never weighed. The range of yields is from 200 to 600 bags per acre or 10 to 30 tons per acre. The average is between 300 and 400 bags per acre according to local growers. The growing period for taro is from 14 to 16 months depending on weather and varying production practices. If we allow 2 or 3 months between harvest and replanting for weed control and resting the soil, this means that a full crop cycle takes about 18 months. In other words, a farmer can get 2 crops in 3 years. Therefore, a yield of 400 bags per acre converts to 267 bags per acre per year. For the Hanalei area the annual production of taro is approximately 4 million pounds or 2000 tons. Prices to farmers have been rising slowly in recent years with the present price for most of the taro in Hanalei at $7.50 per bag. One poi mill which handles only a small volume is paying $9.00 per bag. Assuming that $8.00 per bag is an average, the annual value of taro grown in Hanalei is $300,000.

In 1966, the Cooperative Extension Service on Kauai conducted an extensive study of taro growing costs and returns.[3/] Since then there have been a few changes in production methods but the general results are applicable to the present situation. Some additional mechanical equipment is now being used and prices have generally increased both for supplies and for the taro. These were taken into consideration in making the following estimates which are based on the 1966 study.

The average yield per acre in 1966 was 264 bags but in 1972, it is estimated at 300 bags with a value of production per acre of $2400 as shown in Table 1. Taro is a labor intensive crop as can be seen from the proportion of costs accounted for by labor. Hired labor costs are typically $2.00 to $2.50 per hour. To grow taro to maturity, the labor involved in paddy preparation, planting, weeding, fertilizing, and irrigation is about 21 percent of the production costs. Harvest labor is even larger, accounting for 43 percent of costs. Together, these labor costs are nearly two-thirds of total production costs.

2/ Statistics of Hawaiian Agriculture 1970, Department of Agriculture, State of Hawaii, p. 21.

3/ Dennis Ikehara and Herbert Hiroshige, Cost to Produce Taro-Kauai-1966, Farm Management Series K-3, Cooperative Extension Service, University of Hawaii, March 1967.

Materials such as fertilizer, tools, horse feed, and others add up to 24 percent of costs. The smallest cost item is mechanical equipment at 3 percent, but in the future as new developments are made, this item will become more important as it substitutes for some labor. General overhead is 9 percent of costs. The total costs are 63 percent of gross receipts leaving 37 percent as net income to the farmer.

Appendix Table B1. Taro production costs and returns per acre

Item	Dollars	Percent of production costs	Percent of gross receipts
Receipts			
300 bags @$8.00	2400		100
Production costs			
Labor for growing	318	21	
Labor for harvest & marketing	650	43	
Materials	363	24	
Equipment	45	3	
Overhead (rent, taxes, insurance)	136	9	
Total costs	1512	100	63
Net income			
Receipts--production costs	888		37

Now, suppose we wish to find out how much income a farmer can earn from taro production if he does all the work himself without hiring other labor. For 1 acre, the farmer would earn the following:

	Per acre	Per year
Growing labor	$ 318	$ 212
Harvest labor	650	433
Net income	888	592
Total	$1856	$1237

By multiplying $1856 by 2/3 to allow for 2 crops in 3 years, the annual income per acre for a taro grower is $1237.[4/]

One man can handle from 4 to 6 acres depending on how many hours he is willing to work. About 353 hours of labor is required for each acre per year, so a full-time worker could probably take care of 6 acres. This is probably the maximum because not all tasks can be spread out evenly and will bunch up in certain time periods. This means that a man could earn a maximum of $7422 per year growing taro. Compared with alternative employment opportunities and the kind of labor required, it is not at all surprising that few young men are choosing taro farming as an occupation.

Taro Marketing

Taro farmers have no bargaining power or control over prices paid or quantities sold. The poi mills determine how much taro they will buy each week and what price they will pay. The growers are then told how many bags they may ship each week. Two poi mills on Kauai deal directly with growers in Hanalei. However, these mills produce poi

4/ Some of this is a return to capital invested but it is difficult to show the precise return because no two taro farms have similar investments. This disparity makes an estimate of return to capital of little value for interpretation.

only for consumption on Kauai so their volume is relatively low, taking less than 50 bags per week on a yearly average. The reaminder of 600 bags per week or 93 percent of production goes to Honolulu poi mills. Taro producers in Hanalei supply from 50 to 60 percent of the taro processed in Honolulu, the largest market in the state.

Two Honolulu poi mills each have an agent in Hanalei to arrange shipments from growers to the mill. The mill gives the agent a quota or order each week which he, in turn, allocates among the growers from whom he buys. The agents generally distribute the quota among growers based on past production and in an attempt to treat growers equitably. Both agents in Hanalei are also taro growers themselves.

The agent system appears to work in a reasonably efficient way to get taro from growers to the poi mill, and there is only limited criticism of the present arrangement. There is, however, a sharp imbalance in the relative bargaining positions of growers compared to the processing firms. Even if it is only an implied threat, it is clear to each grower that as an individual he is at the mercy of the agent who, in turn, is responsible to the poi mill, not to the grower. One grower, who was asked if he had ever sold taro to a different mill to take advantage of price differentials, replied that he had never attempted to change markets for fear of losing his market entirely. There is no association of growers or other informed source to provide market information to assist in crop planning or scheduling over the year.

Prices at the farm are relatively stable although they have gradually risen over time. The present average price of $8.00 per bag compares to $6.00 when the 1966 study by Ikehara and Hiroshige was

Taro production faces a bleak future in Hanalei unless positive measures for change are undertaken.

made and to $1.50 during World War II and $3.60 immediately after the war. The control of prices and marketings is done entirely by the poi mills who maintain the price through specifying the amount of taro they will accept.

In recent years, the hopes of the taro industry were raised by the expectations that a major new market for poi would develop among allergic babies unable to eat milk or some other baby foods. While some people in the industry still mention this possibility, nobody is seriously working on a program to make it a reality.[5/] The growers are unorganized and know little about the market for taro once it leaves

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5/ A summary of the economic issues involved is presented in Perry F. Philipp, "Some Economic Factors of Hawaiian Poi as a Baby Food," presented at the Taro Conference in Honolulu, April 4, 1968.

the farm. The poi mills seem content to serve the existing market because they would not be likely to share in the new market as baby food producers would probably make their own poi. No food manufacturer has stepped forward to create a market, largely because it would be relatively small compared to other products and the returns have not seemed large enough to warrant the costs.

There are probably a variety of other products which could be made from taro such as chips and other snack foods, but because it is a small industry with a fairly specialized market, there has been no encouragement to seek out new products. Another important factor is that other products such as corn, potatoes, rice, and wheat are far cheaper to produce in large quantities than taro, and it is easier and more profitable for food processors to look to those other products rather than taro.

Characteristics of Hanalei Taro Growers

As a group, the taro growers in Hanalei are fast becoming old men. Of the 25 growers contacted in the community survey, the average age was 51.5 and only 4 growers are under 40, while 6 are over 60 years old. This raises the obvious question of who, if anyone, is going to grow the taro when the current generation retires over the next 10 or 15 years. Young men are not entering the industry.

Taro growers are generally long time residents of Hanalei. Only 16 percent of the growers have lived there less than 20 years while 48 percent have lived in the community longer than 40 years. Not only have they lived in Hanalei a long time, most growers (56 percent) are part-time farmers and only grow taro as a supplement to another full-time job.

Japanese growers make up 52 percent of the total and Filipinos account for 28 percent, while 16 percent are mixed Hawaiian and 4 percent are Chinese. The average size of household is 4.4 people; 28 percent have 6 or more and 44 percent have 3 or less people in the household. As a group, the taro growers have fewer years of education than the community average. Only 28 percent have a high-school diploma while the other 72 percent have fewer years of schooling. Over one-fourth have less than 6 years of education.

As far as household income is concerned, 28 percent had less than $7000 per year; 20 percent earned $7000 to $11,000; 40 percent had $11,000 to $20,000 and 12 percent earned over $20,000. The income reported here is total income from all sources of employment by everyone in the household. Since taro production is commonly a part-time occupation, it did not account for the total amount. Typically, about 25 to 40 percent of household income was earned from taro growing among part-time growers.

Land Use and Tenure

Only 15 percent of the land in taro production is owned in fee simple by the farmers. The remainder is leased. Most of the land in the Hanalei Valley is owned by Eagle County Development Corporation (ECDC) and leased to farmers for specific use in taro production or pasture. ECDC is presently giving 9-year leases to taro growers for $25 per acre per year and the grower also pays the property tax. The

land is assessed at $490 per acre and the 1970 tax rate was $15.00 per $1000 of assessed value. This means the property tax per acre is $7.35 annually plus the tax on improvements, which are generally of low value.

The 9-year lease presently offered to growers is a significant improvement over tenure arrangements by the previous land owner who did not offer any long term leases at all. Therefore, taro growers in the Hanalei Valley can now look forward to a longer time period in which to plan their farming operations.

Less than half of the land potentially suited to taro production is currently in use, while the remainder of the valley is in pasture or waste land. If an increase in demand were to occur, there is ample room in Hanalei to expand the production of taro to more than double its present production. The same is true in Waipa and Wainiha Valley. This assumes, of course, the availability of labor and capital to make full use of the available land.

Unique Scenic Contribution of Taro Industry

To illustrate the special role of taro farming in Hanalei to the natural scenic beauty of the area, one need only note the frequency with which pictures of the valley taro farms appear on post cards, tourist information, and in picture books. Nestled along both sides of the river, at the foot of steep mountains, the taro field provide color contrasts, symmetry of adjoining fields, and a pleasing approach to the community of Hanalei and the bay. Just by listening to casual remarks of passers-by who stop to look over the valley, it is evident that many visitors and local people alike wish to see taro farming continued for its scenic contribution alone. Most of those viewers, however, have not the faintest notion of how or what is involved in the industry nor what its future economic prospects may be.

In an age when open space is at a premium in many developing areas, the taro farms play a role in keeping open space that is at once spacious and quite pleasing to the eye. While there are many open vistas in more remote areas, there are few urban areas where taro is grown right in the center of town and up the edges of the community. The value of open space to any community is difficult to estimate, but there is general agreement that the open space in agricultural use is of positive value.

A final reason for the public concern over preservation of taro farming is that it is one of the remaining examples of small scale family agriculture in an era of corporations, conglomerates, bigness, and impersonality. It is a link with the past when agriculture was a way of life rather than just another kind of investment or job choice. The nature of wetland taro production insures that it will remain small and personal because of the labor intensive methods used. Even with improved mechanization, it is not likely that taro will be grown under a plantation style of management or ownership.

Problems Confronting the Taro Industry

The major question concerning the future of taro centers around who will grow it. Nearly half of the present growers will be gone from the fields within the next 10 years and no one is in sight to take their place. Once the nostalgia of family agriculture and small

scale operations is brushed aside, taro growing is simply not an attractive career choice. It requires hard work, long hours, and the returns are quite low. Without some improvement in the economic returns, either through expanded markets, improved mechanization or subsidies, it is doubtful if many new growers will enter the industry.

The need for labor in harvesting is presently a problem for most taro growers. The harvesting operation requires two-thirds of the total labor for a crop of taro. Typical wages are $2.00 to $2.50 per hour including fringe benefits. A worker who earns $2.00 per hour can expect an annual income of $4000 to $5000--low compared to other alternatives.

Land tenure has been a traditional problem for small taro growers. Purchase of the land by the Federal government for use as wildlife sanctuary is a further possible development which causes uncertainty among the growers.

Probably the most pressing problem confronting taro growers is the need for a better technology of production. Foremost is mechanization of high labor tasks such as harvesting and planting. Research on better machines is underway by the Agricultural Experiment Station of the University of Hawaii and by one or two private equipment manufacturers.

Dryland taro production would be much more suited to mechanical methods than wetland taro, especially the harvesting operation. With an intensive research program, it seems likely that dryland taro production could be greatly improved over the present, but no agency or organization is involved in an intensive research effort. As far as Hanalei is concerned, the result of a new dryland taro technology would probably be disastrous. There is a strong likelihood that the Hanalei Valley would no longer have a comparative advantage in taro. Other upland areas better suited to large scale cultivation and dryland culture could be brought into production at the expense of taro land in Hanalei. At a taro conference in the mid 1960's, it was pointed out that ample land for dryland taro could be found on Kauai.[6/]

Another technological problem is weed and disease control. No herbicide or fungicide has been approved for taro and the only alternative is hand labor to pull weeds. Little interest has been shown by chemical companies because the market for such products would be limited. The University of Hawaii is working on this problem and hopes to have something available within a few years.

Market development has already been mentioned as a problem. The baby food market will not develop automatically. This and other markets, if exploited at all, will take time, money, energy, imagination, and cooperation from all segments of the taro industry. A possible new market is the natural food or health food demand that has developed in recent years. As with baby food, however, the market will not arise spontaneously but would have to be nurtured through hard work. Similar statements apply to specialty foods or snack items that might be made from poi or taro. Creating the product is only a small part

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6/ Harold L. Baker, "Suitable Lands for Dryland Taro on Kauai," Proceedings of the Taro Conference, MP 36, Cooperative Extension Service, University of Hawaii, March 1967, pp. 14-17.

of the task. Packaging, warehousing, distribution, shipping, and advertising are also important.

Private and Public Policy Alternatives

There are some things which government can do and others which can only be done by private effort. Some options require cooperative effort of public agencies and private individuals. The alternatives discussed here may not exhaust all the possibilities and certainly more study and discussion of the probable consequences will be required.

A. Because of the traditional cultural, historic, and scenic role of taro, people attach great importance to its continuance. For this reason, it can seriously be suggested that outright cash subsidies be paid to taro growers in order to keep them in production. All the implications of this policy are not clear, but some speculation is possible. Some people would object to expending public funds on an outdated industry. Even though growers might stay on the farms, the market for poi could continue to decline, leading to lower prices and higher costs of subsidies. Taro growers are proud of their work and might not take kindly to the idea of being subsidized, thus defeating the objectives of the policy. It could also be a tremendous windfall to the poi mills since growers now have no bargaining power. If the public decided to support the incomes of taro growers, it would then be possible for the processors to pay lower prices for taro on the assumption that some source would pick up the required difference to keep the farmers in production.

B. A taro growers association or cooperative might be formed to promote the cause of the industry and to encourage research and market promotion. There are several directions such a move might take. One would be a growers association to gain more bargaining power with taro processors. Another possibility would be to include the poi mills in a joint effort to promote taro products and improve the income potential for both growers and processors.

C. Zoning land for agricultural use and preventing encroachment by other land uses would result in lower land values and lower taxes which will keep overhead costs down and may help hold marginal growers in production longer. There are limits to this policy because land costs and taxes are already quite low and are not significant cost items. The zoning approach would protect the taro industry from competition by other land uses but would do nothing to alleviate the internal economic problems of the industry. Therefore, in the absence of other solutions, the eventual result of the zoning approach would be the same as doing nothing and probably in about the same time period.

D. Research and development in two areas--production technology and marketing. Support for research must come from several sources--growers, processors, and public agencies. The cost of research comes high and it must be recognized that large amounts may be required. There is never a guaranteed payoff to investments in research. These factors must be considered in light of the relatively small size of the industry.

Without some advances in mechanical methods of production, there is no point in seeking new markets because of limited labor. A dis-

turbing possibility is that the reverse may also be true--more efficient production won't be worth much without expanded markets since the consumption of taro products may continue to diminish. Even if research pays off in new methods and new markets, there is still the possibility that Hanalei would not be able to maintain a comparative advantage in taro production with new technology for dryland taro.

E. A poi mill in Hanalei, built either by the growers themselves or by another investor, might enhance the position of local taro growers. Since a large share of the existing market is served by Hanalei growers, it could be reasoned that processing at the point of production would reduce shipping costs. Unless the long term prospects for the industry look brighter, however, investment in a new poi mill might not be feasible. A poi mill in Hanalei would be at a disadvantage with respect to the major market in Honolulu. Taro can be shipped without spoilage, but poi must be marketed immediately. Hanalei is too far away to easily coordinate poi production to market needs even with air transportation.

F. Do nothing and allow nature to take its course. The consequence of this choice would be the gradual phasing out of taro production in Hanalei (and probably other areas) over a period of 15 to 20 years. The first to go will be the older growers and, if labor cannot be obtained or mechanical production be used, even the larger growers will be forced to cut back or go out of business. The lack of labor or suitable mechanization would prevent larger operators from absorbing lands left idle by retired growers. The last to go would be part-time growers who do not have to depend on taro for their full income. Even as a part-time business, however, taro does not appear to be attracting new growers,

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FIGURE 15. MOLOKAI GENERAL PLAN.